Acknowledgements

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EPA’s Pilot Program Goals

1. **Develop a framework** to integrate multiple sources of data for event detection

2. **Prove the concept** for utilities of all sizes/characteristics

3. **Promote the implementation** by identifying **multiple benefits** (operational, regulatory, security)

4. **Communicate the results and best practices**
CWS – What Is It Really and How Does it Benefit Our Retail and Wholesale Customers?

- Expanded and Improved Water Quality Management System

- More Timely and Rigorous Response to Changes in Water Quality
Dallas Contamination Warning System (CWS)

- More timely and comprehensive water quality data

- Enhanced communication & coordinated response
- Database of historical water quality information

- Bolstered security awareness and procedures
- Better communication with Security Partners

- Integration of public health surveillance data as an information source
- Improved communication channels between DWU and Public Health Agencies

- More timely awareness of consumer complaints

Consequence Management Plan
Online Water Quality Monitors (OWQM)

- Four monitors give a “fingerprint” of water leaving each plant

- Twelve distribution monitors provide continuous water quality data in the system

- Event detection system (EDS) looks for anomalies

- Six sites completed January 2011

- Ten remaining sites being installed September to November 2011
Benefits of Expanded Water Quality Monitoring Capabilities

- 24-7 view of system water quality available to staff and managers
  - Multiple parameters, including:
    - Nitrate, Total Chlorine, Turbidity
    - TOC, Conductivity, UV Spectral/Absorbance
    - DOC, pH, Free Ammonia
  - Web accessible to DWU Executives and Operators
  - Trending

- EDS notifies operators and managers of anomalies

- Valuable for detection
  - Water quality changed from intentional or unintentional actions
  - Water quality changes from a natural phenomenon
  - Problems at water treatment plants

- A look at what is really going on in our system
Sampling and Analysis (SA) – Where Do My Labs Fit In?

- SA Team involves staff from multiple DWU divisions and outside agencies

- Team provides sampling and analytical services
  - Year of baseline sampling conducted from August 2011 to August 2012
  - In the event of contamination

- Selection and implementation of a LIMS system

- Develop laboratory network
  - Supports DWU in the event of contamination
Sampling and Analysis – Benefits to the Customer

- Improved methods and/or instrumentation to analyze for contaminants of concern to water quality and security
- Expanded data transmission, storage, and retrieval methods and protocols, allowing for more thorough and timely analysis of water quality information through the laboratory information management system (LIMS)
- Enhanced partnerships with regional and state response partners
Enhanced Security Monitoring (ESM)

- Integrating existing security related documents into a Security Master Plan to be completed December 2011
- Establish a relationship with potential security responders
  - Familiarize Dallas Police Department with DWU facilities
  - Interface between the CWS and Dallas Police Department’s Fusion Center
- Institute link between security sensors and operators
- Hired Security Coordinator in 2009
- Ongoing physical security improvement projects at WTPs and Pump Stations
Consumer Complaint Surveillance (CCS)

- Water quality complaints received through,
  - 311 call center
  - Water Quality Hotline
  - Wholesale customers calls

- Categories expanded to better define nature of complaint

- Complaint entered in City’s SAP system

- CWS pulls data from SAP
  - Complaints geo-coded and displayed on the dashboard
  - Alerts key staff of complaint clusters

- Completed improvements to SAP complaint handling protocols in April 2011
Consumer Complaint Surveillance – Direct Benefits to the Customer

Enhanced Information Handling and Processing
- The expanded 311 categories give DWU staff a better picture of the nature of the complaint
- All complaints will be input and tracked in SAP
- Staff and managers can view and follow complaints
- Valuable in detecting subtle changes in water quality
  - Where has it changed?
  - How has it changed?
- Improved data allows tailored response and faster resolution

We can now be even more responsive to our customers
- The wholesale customers still contact DWU Wholesale Services and any complaints will be forwarded to the SAP system
Public Health Surveillance (PHS)

- Interface with Advanced Practice Center (APC)
  - Provides syndromic surveillance for 49 counties in North Texas
  - Funded by Center for Disease Control (CDC)
  - Monitors emergency room admissions
  - Can monitor over-the-counter drug sales
  - Interface to be complete by December 2012

- Provides indications of a syndromic event
  - Waterborne illness
  - Poisoning

- Establish communication with Dallas County Health and Human Services
Public Health Surveillance – Benefits to the Customer

- It complements other sensors, OWQM & CCS… and establishes lines of communication
  - The syndromic surveillance alerts us to a potential link to water borne health issues
  - Communication protocols allow rapid validation, or elimination, of a link to water supply
    - Focuses resources on actual contamination source…water supply or other
    - Gives information to medical personal to prescribe the right treatment

- Wholesale customer city citizens are covered by APC monitoring

- This is a valuable data stream we never had before
CWS Event Detection Database and Dashboard Provides Notification and Visual Display

- “Brains” of the CWS
- Continually analyzes sensor data streams
- Puts data at staff and manager’s fingertips, 24-7
- Signals DWU operators and key managers when anomaly is detected for quicker response
Consequence Management Plan (CMP)
Key Components

- Sets clear organizational roles and responsibilities for water quality incident response
- Incorporates into DWU’s Integrated Contingency Plan (ICP)
- Includes extensive drills, training and exercises conducted routinely through July 2012
- Defines and includes key external response partners
Summary of DWU CWS Water Quality and Security Benefits

- Tool for system-wide water quality management
- Improved customer service
- Enhanced culture of security
- Established partnerships
- A robust response plan
- Reduces overall response time in a contamination event
Thank you for your attention!

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