Drought Response and Recovery

A Basic Guide for Water Utilities
Drought Response and Recovery

Project Drivers

- Extreme and prolonged droughts can and have impacted water utilities across the U.S.

- Small to medium-sized water systems could use a user-friendly tool that outlines short-term actions they can take to respond to drought that also build long-term resilience

- Regardless of previous drought experience, utilities want to learn how other communities similar to them have responded to severe drought conditions
Drought Response and Recovery
Project Approach

- Captured lessons learned from six diverse case studies (varying location, system type, etc.) which helped to drive Guide content
- Worked with Water Sector Focus Group throughout Guide development

Case Study Visits:

- *Tuolumne Utilities District, CA
- *Spicewood Beach Water System, TX
- City of Las Vegas, NM
- City of Hogansville, GA
- Cities of Hays and Russell, KS
- City of Clinton, OK

*Pilot utility: included in-depth assessment
DROUGHT RESPONSE AND RECOVERY
A Basic Resilience Guide for Water Utilities

Select a menu option below. New users should start with Overview and Navigation.

Overview and Navigation  Staffing, Response Plans and Funding  Water Supply and Demand Management  Communication and Partnerships  Case Studies and Videos

EPA
Guide Navigation
Informational and Easy-To-Use

Explore the Drought Guide more easily through:

- Simple icons for tabs, worksheets and videos
- Separate boxes embedded throughout that represent certain types of info
- Sections broken up into key areas with bullets

Quick navigation between sections and pages
Guide Features
Best Practices, Worksheets, Links and More

BEST PRACTICE: Applying water conservation measures is one of the least costly “water supplies” that you can add to your portfolio. It can also help defer capital costs.

(Corix) Spicewood Beach Water System. The Texas utility’s drought response plan established reduction goals and specific drought response measures to curtail non-essential uses and utilize alternate water sources. For example, during Stage 2 drought, the plan includes measures such as 10 to 20 percent reduction in water use, no more than twice per week irrigation during limited hours, no hydrant flushing, and additional measures for pools and outdoor water features.

FOR MORE INFORMATION ON WATER DEMAND MANAGEMENT:
- Alliance for Water Efficiency (AWE)
- AWWA Drought Portal
- EPA’s WaterSense
- AWWA Conservation and Resource Management

Use Worksheet 5 to identify water demand management measures that can be implemented quickly.

Water Supply and Demand Management
Water Demand and Customer Use Worksheet 5

This worksheet is for water use reduction measures that can be implemented quickly during a drought. Add other items you would like to track at the bottom of the worksheet. Note that the actions listed do not need to be completed in the order listed. Save the worksheet to your computer before making any changes.

SYSTEM EFFICIENCY
1. Increase leak detection and repair efforts in the distribution system. Ask your customers and all field personnel to report leaks. Estimate costs of repairs and potential labor shortages or emergency contractors if needed to make repairs quickly. Coordinate with your financial team to make budget adjustments as necessary.

2. Consider doing the following to save water in your system:
   - Managing pressure to reduce leaky leaks
   - Use in situ leakage monitoring to locate leaks
   - Have a plan to reduce leakage in the head of your treatment plant

After the Drought:
- Continue to implement your leak detection and repair program that ensures a prompt response mechanism for utility staff to make repairs. Prioritize and repair or replace components in the water distribution network that could lead to leaks.
- Look for other ways to use water efficiently throughout your utility or other departments, such as installing low-flow fixtures, retrofitting landscapes and replacing inefficient irrigation systems.
- Initiate a program to conduct annual water loss audits.
Drought Response and Recovery Guide
Staffing, Response Plans and Funding (1A)

Topics cover:

- Developing a drought response team
- Considerations and challenges with utility staffing
- Key points to include in a drought response plan
- Tips and tools for training on and exercising drought response
Topics cover:

- Potential sources of funding to recover revenue

- Examples of how others approached funding (conservation rates, sales tax, grants, etc.)

- Where to look for help or assistance (WARN, NRWA, etc.)
Excel spreadsheet to help estimate available water supply (surface/groundwater)

Ways to improve internal system efficiency

Identifying where to reduce water demand and what measures work

Options for obtaining new water supplies

Tools/resources for drought forecasting, increasing efficiency, and demand management
Drought Response and Recovery Guide
Communication and Partnerships (3)

- Keys to communicating drought issues/solutions to customers and decision-makers
- Examples of unique partnerships and outreach efforts
- Suggested partners to consider reaching out to
Drought Response and Recovery Guide
Case Studies and Videos

CASE STUDIES AND VIDEOS

The following case studies highlight small and medium-sized utilities that successfully responded to drought. Reflecting a broad range of situations — diverse geographies, water resources, response actions and funding approaches — these utilities’ actual stories demonstrate solutions that work.

They provide examples of proven ways to reduce demand, access additional water supplies, communicate effectively, secure funding and develop partnerships to survive drought. Lessons learned by your peers may help you plan for and respond to drought by finding solutions that work for you and your community.

Note that your state may have specific rules that could prevent use of some the case study utilities’ actions, so first check with your state regulators or legal counsel; even if that is the case, these innovative solutions may inspire other ideas to help your utility and community become drought resilient.

Click on the images to learn about solutions from each case study.

- Tuolumne Utilities District, Sonora, California
- (Corix) Spicewood Beach Water System, Spicewood, Texas
- City of Las Vegas, New Mexico
- City of Hogansville, Georgia
- Cities of Hays and Russell, Kansas
- City of Clinton, Oklahoma
Case Study Focus
City of Clinton, Oklahoma

Two-page summary on water utility that includes:

- System details
- Drought response measures taken under:
  1. Staffing, Response Plans, and Funding
  2. Water Supply and Demand Management
  3. Communication and Partnerships

Links to external Case Studies Map and Videos
Welcome to the Case Studies Map for U.S. Environmental Protection Agency's (EPA) Drought Response and Recovery Project for Water Utilities. This site contains several tabs, including an Overview, Drought Actions and six case studies describing the experiences of small and medium-sized drinking water utilities that successfully responded to drought.

The background image in each case study tab is taken from the United States Drought Monitor and corresponds to the week of peak drought for each utility.

How to use the map:

- Click on the dots on any map to learn basic information about each utility.
- Watch the drought action videos to learn more about how the case study utilities overcame specific drought challenges.
- Navigate to individual case study tabs to further explore how each of the water utilities responded to and recovered from the impacts of drought (click on the far right tab if all six case study tabs do not show with your screen resolution).

For more information on these case studies and other drought response activities, view the Drought Response and Recovery Guide.
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Case Studies Map and Videos
Geoplatform – City of Clinton, Oklahoma

City of Clinton, Oklahoma

The City of Clinton's Story

Utility Overview: 4,162 connections
- Customers: 45% residential, 55% commercial or industrial

Drought summary: water levels reached a historic low and surface water source went dry; had an existing interconnection, but incurred approximately $1 million per year in "average fee" costs to gain additional supply; purchased supply source began to run dry.

Drought response actions: implemented water use restrictions, increased the amount of water purchased from existing interconnection; raised water rates by 49% to promote water conservation and provide revenue stability; started constructing new groundwater wells, a 7-mile conveyance system and a reverse osmosis (RO) water treatment plant.

Click on the dot for basic information on the utility and to go to their website.
Drought Response and Recovery Guide
Release and Outreach

What’s Next?

• Expected publication date – Early March 2016

• Two workshops conducted on 12/1/15 & 12/2/15
  • In Merced and Tulare, CA as part of the National Drought Resilience Partnership (NDRP)

• Presenting at AWWA Sustainable Water Management Conference in Providence, RI at 11:30am on March 9, 2016

• Working with DWPD to conduct additional 2016 workshops focusing on water loss and leak detection – locations TBD
Questions?

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