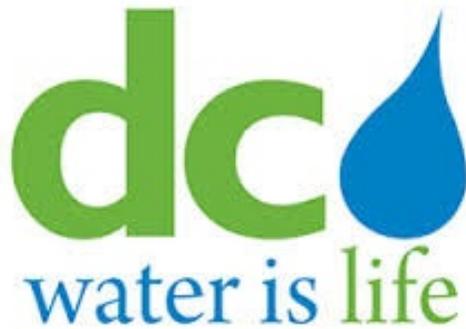


Critical Customer Water and Wastewater Emergency Response Guide



May 2023

Disclaimer: This document contains checklists and emergency preparedness information, which are provided in good faith for guidance and reference purposes only. The information in this document is general and educational in nature, and DC Water takes no legal responsibility for the accuracy of the information provided nor any loss or damage arising or resulting from the use of any such information.

This guide is intended to be a tool for DC Water critical customers on water and wastewater emergency preparedness. DC Water hopes that this guide is useful for your organization, business, or facility and welcomes your input and recommendations to enhance this document. If there is additional information, tools, or topics that your organization, business, or facility believe should be included in this guide, please let us know by emailing the DC Water's Office of Emergency Management at DCWaterOEM@dcwater.com.

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Acronyms

AAR: After Action Report
BPA: Backflow Prevention Apparatus
CIKR: Critical Infrastructure and Key Resources
FEMA: Federal Emergency Management Agency
gpd: gallons per day
gpf: gallons per flush
gpp: gallons per person
HSEMA: Homeland Security and Emergency Management Agency
HVAC: Heating, Ventilation, and Air Conditioning
MGD: Million Gallons per Day
NCR: National Capital Region
NGO: Non-Governmental Organization
POC: Point of Contact
RICCS: Regional Incident Communication and Coordination System
WAWAS: Washington Metropolitan Area Warning System
WebEOC: Web Emergency Operations Center

Critical Customer Water and Wastewater Emergency Response Guide

Introduction

This guide was originally developed with the sponsorship of U.S. EPA Region 3 and the assistance of several public and private entities. The group designed several checklists to help Critical Customers prepare for, respond to, and recover from water and wastewater service interruptions safely and

effectively. This document contains important phone numbers, checklists for recommendations on what to do before, during, and after an event, and appendices that include additional information that support the checklists. Since the original document, the District of Columbia Water and Sewer Authority (DC Water) and partner organizations have continued to enhance the guide yearly, by reviewing and providing the most up-to-date information. Ensuring DC Water's Critical Customer(s) are resilience to water and wastewater emergencies allows DC Water to better serve our entire customer service area.

Acknowledgements

The Critical Customer Water and Wastewater Emergency Response Guide was first developed in May 2018 with the sponsorship of U.S. EPA Region 3, and compiled by the Horsley Witten Group, Inc. A task force of public and private entities supported the document development and are listed below.

- Akridge Invested
- American University
- Bridgeport Hospital
- Central Heating Plant
- DC Homeland Security and Emergency Management Agency
- DC Water
- Downtown DC Business Improvement District
- General Services Administration
- Golden Triangle Business Improvement District
- International Monetary Fund
- Prince George's County Fire and EMS Department
- Sodexo
- Stoddard Baptist Global Care
- Washington Suburban Sanitary Commission

Purpose

The National Capital Region (NCR) is home to unique characteristics including varied terrain and geography; the international prominence of the major buildings and monuments in and around Washington, D.C.; service as the seat of all three branches of the federal government, and the mixed distribution of industrial, commercial and office complexes (government and civilian) in the member jurisdictions. The geographic, natural, governmental, and economic importance of D.C. makes it susceptible to natural, man-made, and technological threats and hazards. For example, meteorological hazards, such as hurricanes, may affect the entire region, but industrial accidents/incidents are more likely to affect those areas within the jurisdictions that have concentrations of industrial and commercial activity. Although Washington, D.C. has little industry, and is subject to relatively few natural hazards, its national prominence and internationally recognized and culturally significant monuments, buildings, and resources, make it a prime target for terrorism. Each critical customer should conduct assessments of their organization's vulnerabilities, risks, and likely impacts that each of these hazards/threats pose. The following provides a partial listing of the most likely potential hazards that the region faces.

Common Threats and Hazards in the National Capital Region

Natural Hazards, such as, but not limited to:

- Floods, flash floods
- Winter storms
- Hurricanes, tropical storms
- Tornado
- Drought
- Extreme heat or extreme cold
- Extreme heat or extreme cold
- Virus or epidemic
- Earthquakes

Accidents, such as, but not limited to:

- Fires and explosions
- Power failure
- Structural failures
- Water main breaks
- Sewer breaks, collapses
- Transportation incidents
- Hazardous material releases

Man-made, such as, but not limited to:

- Special events (e.g. Presidential Inaugurations, Papal Visit, MLB All-Star Game)
- Protests
- Workplace violence and active assailant
- Infrastructure outages (water, electricity, communications)
- Technological Failures
- Chemical, biological, radiological, and nuclear devices
- Cyber-attacks

The consequences of these emergencies have the potential to disrupt essential services (e.g., drinking water service, wastewater services), mobility, public health and safety, and regional infrastructure.

Water Sector Infrastructure Interdependencies

Water is essential to life. Human health, the economy, and many community services rely on water. Water infrastructure damage can adversely affect the operation of all other critical infrastructure sectors. Conversely, damage to other critical infrastructure sectors could impact drinking water and wastewater services, thereby creating an infrastructure interdependency. *Infrastructure interdependencies* are defined as the relationships between two or more critical infrastructures. The water sector, comprised of drinking water, wastewater, and storm water utilities, has been designated by the U.S. Department of Homeland Security (DHS) as one of 16 critical infrastructure and key resource (CIKR) sectors.

Potential Consequences of Drinking Water and Wastewater Service Disruptions

Potential consequences of drinking water service disruption include:

- Lack of water for consumption, cooking, bathing, flushing, and fire suppression.
- Loss of water for commercial irrigation, food supply, and production.
- Decreased public confidence in the water supply and supplier(s).
- Need to access alternate water supplies and/or issue a boil water advisory, do not use notice, or do not consume notice.
- Adverse economic impacts.
- Loss of water for facilities' and electronics' cooling systems.

Potential consequences of wastewater service disruption includes:

- Sewage or storm water discharges (causing damage to buildings, landmarks, and roadways).
- Release of hazardous chemicals into wastewater, impacting public and environmental health.
- Need to pre-treat wastewater before wastewater enters treatment plan and need to properly dispose of wastewater residual.
- Risks posed to public health and sanitation.
- Sewage and storm water discharge impacting plants and wildlife.
- Adverse economic impacts and loss of property.
- Damage to service provider's reputation and public confidence.

Critical Customers

DC Water 'Critical Customers' are defined as consumers or service connections that are critical to community resiliency (public safety or health), demand a large volume of water to sustain economic resiliency, or service a susceptible population such as and specific to Washington D.C.:

- First Responder Organizations / Police / Fire / EMTs
- Hospitals / Medical Centers (including dialysis centers)
- Local / Federal Government Facilities necessary for public safety / health
- Mass Transit Stations
- Nursing Homes / Assisted Living / Homeless Shelters
- Potable Water Haulers
- Power Provider
- Public Shelters / Cooling Centers / Water Parks / Municipal Pools
- Radio / TV Broadcast Centers
- State / Local Emergency Management Agencies
- Universities / High Schools / Elementary / Middle Schools / Preschool and Day Care Centers

Important Phone Numbers

In the event of an emergency call 911. Additional DC Water contact information can be found on DC Water’s website, here: <https://www.dewater.com/contact>.

DC Water Departments		
Issue	Responsible Office	Phone number
Water or Wastewater Emergency	Emergency Command Center	202-612-3400
Backflow Prevention	Office of Marketing and Communications	202-787-2003
Cross Connection Control	Water Compliance Program	202-364-3144
General Questions	Main Office	202-787-2000
New Connections, Water Turn-offs, Lead Information	Customer Service Office	202-354-3600
Metering and Meter Reading	Meter Operations	202-612-3500

Response Partners		
Issue	Responsible Office	Phone number
District of Columbia Emergency Concerns	DC Homeland Security and Emergency Management (HSEMA)	202 727-6161
District of Columbia Drinking Water Primacy Issues	U.S. EPA Region 3	215-814-5122
District of Columbia Wastewater Primacy Issues	Department of Energy and the Environment	202-535-2600
Fairfax County Emergency Concerns	Fairfax County Department of Emergency Management and Security	571-350-1000
Loudoun County Emergency Concerns	Loudoun County Office of Emergency Management	703-737-8200
Montgomery County Emergency Concerns	Montgomery County Office of Emergency Management and Homeland Security	240-777-2300
Prince George’s County Emergency Concerns	Prince George’s County Office of Emergency Management	301-324-4400
Virginia Emergency Concerns	Virginia Department of Emergency Management	804-897-6500
Maryland Emergency Concerns	Maryland Department of Emergency Management	410-517-3600
Virginia Drinking Water Primacy Issues	Department of Health: Division of Water Supply Engineering	804-786-5566
Virginia Wastewater Primacy Issues	Department of Environmental Quality	804-698-4000
Maryland Drinking Water Primacy Issues	Department of the Environment: Public Drinking Water Program	410-537-3000
Maryland Wastewater Primacy Issues	Department of Environmental Protection	410-537-3000

Drinking Water/Sewer Service Emergency Checklist

Organization, business, or facility specific information placeholders are highlighted in red.

Pre-disaster/Emergency Planning

✓	Activity	Response Actions	Resources
	Sign up and register as a Critical Customer for DC Water Alerts.	Review and update at least yearly or when points of contact or facility status changes. Consider using a generic email address and on-call 24/7 phone numbers that automatically notifies specific individuals. Ensure DC Water has the physical address of your organization, business, or facility, which may be different than billing addresses.	https://www.dwater.com/dc-water-alert-notification-signups
	Sign up to receive free alerts from local governments in the National Capital Region	Encourage employees, residents, customers to sign up.	http://www.capitalert.gov/
	Conduct a water audit.	Determine water needs for each facility and identify those uses that can be avoided in the event of a water service interruption.	Appendix 2: Resources for Planning
	Establish/review your alternate water plan.	Review yearly, update as needed.	Appendix 3: Planning Worksheet
	Plan to have supplies and equipment on hand that will reduce water need.	If items cannot be stored onsite, make arrangements ahead of time for delivery of supplies (Note: during a large-scale water outage, numerous entities may be competing for the same resources/vendors).	Appendix 3: Planning Worksheet
	Determine the feasibility of purchasing an insurance policy or rider to existing policies to cover cleanup and damage expenses from sewer backups.	Cleanup from sewer damages are most often the responsibility of the property owner. The property owner is required to maintain the sewer service line and remove any clogs in the lateral line between the facility and the utility owned main.	Insert Insurance Company/Policy
	Evaluate the backflow prevention system.	Contact a licensed plumber with a backflow prevention certification to test the system.	Appendix 4: Maintenance and Inspection <i>Evaluate the backflow prevention system</i>

✓	Activity	Response Actions	Resources
		If the system does not have a backflow prevention system, contact the DC Water Public Outreach Manager at 202-787-2003 to see if reimbursement for the installation of a system is possible.	
	Determine if water system cross connections are possible.	Information about cross connection control is available at DC Water Compliance Program (202-364-3144) or by email at crossconnection@dcwater.com	Appendix 4: Maintenance and Inspection <i>Determine the location of nearby cross connections</i>
	Identify the location of the service line connection(s).	Determine where the facility or facilities are connected to the water main(s) by viewing “as built” drawings or ask DC Water if they have information about connections.	Appendix 4: Maintenance and Inspection <i>Water main shut off procedure</i>
	Notify employees, residents, or other stakeholders in your organization about who provides water to your facility and the appropriate response action to an outage or public notice.	Set up an automated text, email, or phone call service to notify users.	<i>Insert a link to your organization’s notification procedures</i>
	Prepare notification materials.	Develop use notification templates for each different water use advisory type. Model templates contained in Appendix 7.	Appendix 6: Safe Drinking Water During an Outage <i>Model Notification Templates</i>
	<i>Establish relationships with partners in your sector.</i>	Coordinate with other critical customers in your sector to compare emergency preparedness protocols and share information.	
	<i>Additional Information</i>		

During a Disaster

✓	Activity	Response Actions	Resources
	Report drinking water and/or sewer problems and emergencies to DC Water.	Report Online: Type into the online form.	https://www.dewater.com/report-problem
		Report By Phone: Contact the DC Water 24-Hour Command Center.	202-612-3400
		Report On Twitter: Send a tweet.	@dewater or https://twitter.com/dewater
	Report injuries or property damage to DC Water.	If you believe an injury, vehicle or personal property damage was a result of an accident or work performed by DC Water.	https://www.dewater.com/claims
	Maintain situational awareness by checking DC Water’s webpage for alerts.	Alerts appear as orange icons on the webpage.	https://dewater.com/
		DC Water Alerts – receive emergency notifications related to extended disruptions of water and wastewater services.	https://www.dewater.com/dc-water-alert-notification-signups
	Monitor the District of Columbia’s emergency alert system AlertDC.	Monitor for emergency alerts and take appropriate actions to mitigate impacts to you and your business.	https://hsema.dc.gov/page/alertdc
	Review/activate your Alternate Water Plan.	Alternate water plans may include internal purification system, storage, or an alternate water source. Contact the local Emergency Management Agency for assistance. Consider activating your Continuity of Operations Plan (COOP) or Business Continuity Plan.	<p style="color: red;">Insert a link to your organization’s alternate water plan.</p> <p>If your organization doesn’t have a plan, consider consulting the CDC Emergency Water Supply Planning Guide as a reference.</p> <p>Additionally, if your organization doesn’t have a Continuity of Operations Plan, consider consulting FEMA’s Continuity Resource and Technical Assistance page.</p>
	Utilize supplies to reduce water need.	May require ordering supplies from predetermined vendors.	Insert a link to your organization’s alternate water plan.
	Contact the insurance company in the event of damage/clean up.	The insurance company may need to be notified before work begins to cover a portion of damage/clean-up costs.	Insurance company/policy

✓	Activity	Response Actions	Resources
	Respond to public Notice Advisory on water use.	<p><u>Boil Water Advisory:</u> Boil/disinfect water prior to use.</p> <p><u>Do Not Drink Advisory:</u> Avoid drinking from the tap until DC Water announces that the water is safe again. Indicates that nothing can be done locally to make the water safe to drink.</p> <p><u>Do Not Use Advisory:</u> Do not use tap water for any purpose until DC Water announces that the water is safe</p>	<p>Appendix 5: Preparing for and Responding to a Water Outage</p> <p>Appendix 7: Safe Drinking Water During an Outage</p>
	Take action in the event a flood impacts your drinking water or sewer service.	Contact DC Water at 202-612-3400 for water and sewer actions to take during flooding events.	<p>Appendix 7: Preparedness for Specific Events <i>What to do in the event of a flood</i></p>
	Take actions in the event of a sewer backup.	Immediately report sewer backups to DC Water's Water and Sewer Emergency Line by calling 202-612-3400. Contact a cleaning and restoration specialist for services.	<p>Appendix 7: Preparedness for Specific Events <i>What to do in the event of a sewer backup</i></p>
	Make an emergency request.	DC Water may provide water to customers in the event of a prolonged water outage and in certain circumstances may be able to provide certain kinds of assistance (e.g., guidance about flushing, potable water distribution locations).	Emergency Command Center: 202-612-3400
	Additional Information		

Post Disaster/Emergency

✓	Activity	Response Actions	Resources
	Determine if a clean-up or damage claim against DC Water is appropriate	A detailed investigation is required prior to DC Water making a final determination as to the cause of a sewer backup	Call DC Water Risk Management Office 202-787-2052 to initiate a claim
	Flush internal water lines to make sure the water is safe and clean	Contact DC Water for instructions	DC Water: 202-612-3400 or as given as part of incident
	Dispose of contaminated food/water	Avoid using any food or water that has come in contact with untreated water or sewage. Contact DOH for additional food and public health concerns.	<i>Internal communications plan and Fact Sheet: Food Safety During an Emergency</i>
	Check sewage lines	Check sewage lines to see that they are intact before flushing toilets. Contact DC Water for instructions.	DC Water at 202-612-3400
	Conduct an After Action Conference/Review	Facilitate a discussion regarding the lessons learned and best practices identified during the response to the emergency	Appendix 8: After Action Report Guidance
	Share lessons learned	Distribute the results of your organization's After Action Review to other critical customers in your sector and seek out additional learning from their AARs.	
	Additional Information		

Appendix 1: Information and Communication

Communication Basics

To effectively communicate with DC Water, it is important to verify that DC Water has the correct contact information for organization(s), business, and each of your facilities. This includes the physical address of all facilities, as well as a mailing address.

- Make sure your organization, business, and are signed up as a critical customer to receive additional notification in the event of a service disruption. Critical Customer information can be updated here <https://www.dewater.com/dc-water-alert-notification-signups>.
- Encourage staff, residents, or other water users to sign up for emergency alerts from DC Water: <https://www.dewater.com/sign-alerts>.
- They can also sign up to receive alerts through AlertDC, the District of Columbia’s emergency alerting platform, here: <https://hsema.dc.gov/page/alertdc>

If a water or wastewater emergency arises, follow these steps to communicate effectively with DC Water:

1. Report problems via <https://www.dewater.com/report-problem> or by phone at 202-612-3400.
2. Maintain situational awareness as information may change.
3. To maintain situational awareness, check [DC Water’s website](#) regularly for updates and additional notices. Use the resources described in Appendix D to communicate and coordinate with other community partners.

Notice Levels

Visit the DC Water website and follow DC Water social media for information about the type of emergency and what to do. The local media and emergency response agencies may also be a source of information. Specific instructions will be issued for each type of emergency.

- If a **BOIL WATER ADVISORY** has been issued, refer to instructions in Appendix 7 on how to make your water safe to drink.
- If a **DO NOT DRINK ADVISORY** has been issued, avoid drinking from the tap until DC Water announces that the water is safe again.
- If a **DO NOT USE ADVISORY** has been issued, do not use tap water for any purpose until DC Water announces that the water is safe again.

Response Partners

Use the contact information for these response partners to coordinate before, during, or after an incident.

Response Partner	Description	Contact Information
Applicable State or District Environmental Department	Agency responsible for energy and environmental issues, issuing permits, monitoring environmental conditions, providing funding and technical assistance, assessing environmental risks, developing policies, inspecting facilities, enforcing environmental regulations, working with other entities to solve every day environmental issues, and informing and educating the public on local environmental trends and their benefits.	District of Columbia Department of Energy and Environment 202-535-2600
		Maryland Department of the Environment 410-537-3000
		Virginia Department of Environmental Quality 804-698-4000
State Health Department	Health Department responsibilities include identifying health risks; educating the public; preventing and controlling diseases, injuries, and exposure to environmental hazards; promoting effective community collaborations; and optimizing equitable access to community resources.	District of Columbia Health 202-442-5955
		Maryland Department of Health 877-463-3464
		Virginia 804-864-7035 (emergency preparedness center)
Large Retail Establishments	Large retail establishments will have many of the supplies necessary during an emergency response.	Insert contact information here
Advisory Neighborhood Commissions (ANC), D.C. only	An ANC is a non-partisan, neighborhood body made up of locally elected representatives called Advisory Neighborhood Commissioners. Use link number 1 to the right to determine your facility's ANC and link number 2 to access the contact information for the commission. The phone number provided can be called regarding ANC-related questions.	http://dcatlas.dcgis.dc.gov/mar/ https://anc.dc.gov/ 202-727-9945

Preparation and Notification Resources

The following resources exist to assist customers to prepare for an emergency event.

When DC Water issues a notice of service interruption, it will generally contain the following information.

- Recommended ingestion or inhalation rate of contaminated water
- Appropriate response action
- The start time and, when available, the anticipated length of the outage
- The current scope of the outage (e.g., local, or regional)

Notify Customers

As a critical customer, it will be your responsibility to share information and notify the employees, residents, or other people to whom your organization provides water or water related services of the appropriate response action to an outage or notice. It is a best practice to set up an automated text, email, or phone call service so that all users will be properly notified. In the event of an outage or notice, communicate clearly what the notice means, and direct the user to DC Water's website for more information.

Impacts of an Outage

Determine how the temporary suspension of other utilities or public services may affect operations and develop plans to mitigate the impacts. These include:

- **Transportation:** Trains and buses require water to run, so a major water event may cause significant interruptions in public transportation schedules. Anticipate low staff numbers in the event of a city-wide interruption in the water supply.
- **Medical facilities:** Medical facilities may be shut down or experience an increase in patients in the event of a major water service interruption.
- **Electricity:** Power generators often require water for cooling, cleaning, and employee health. Water service interruptions may lead to power service interruptions.
- **Shipping and Postal Services:** May have to slow or stop their function.
- **Food service providers:** Restaurants and grocery stores may not be able to cook or clean.

Appendix 2: Resources for Planning

General Planning Information

In the event of a water outage incident, DC Water is under no obligation to provide alternate water to individual customers and/or critical customers. Each individual customer/or critical customer should review and verify their alternate water plan.

Understand Water Usage through a Water Use Audit

Customers should conduct a water use and vulnerabilities audit. The water use audit will help identify emergency conservation measures that could be used. Also, this audit can identify conservation measures that are easy and simple to implement, resulting in less water use and lower water bills for the facility.

Customers should determine water needs for each of their facilities and identify those uses that can be avoided in the event of a water service interruption. Fill in the blanks of this chart to conduct a water audit.

See table on the next page, which can help conduct a water use audit.

Water Use Audit Table

Use	Cleanliness Necessary (Potable or non-potable)	Gallons per person (gpp)	Users	Essential or Non-Essential	Total (Gallons)
Drinking	Potable				
Washing Hands	Potable				
Sanitation (e.g., flushing)	Non-potable				
Food Preparation	Potable				
HVAC					
Industrial operations					
Bathing					
Laundry					
Total					

Identify Vulnerabilities

All facilities have different internal vulnerabilities. It is important to evaluate vulnerabilities and come up with a plan to overcome any difficulties that might arise in an emergency. The following are some examples of vulnerabilities a facility may have:

- Enhanced risk of fire
- Many buildings across a wide area
- Challenges communicating with residents
- Only one connection point with a water utility
- Served by only one water utility
- Lack of potable water storage

In the event of a drinking water interruption, DC Water cannot provide water to individual customers or critical customers. If potable water is essential for your organization's operations, plan to have an alternate water source. The following are some options for alternate water sources to consider:

- **Internal water purification:** Is a good choice if your organization has high water needs, but keep in mind it may not function during a power outage.
- **Water storage:** Is a good choice if your organization has ample space to store water.
- **Pumping water from a nearby source:** Is a good choice if your facility is located close to another water provider and can secure access to resources to pump water to your facility.

Plan to have supplies and equipment on hand that will reduce needed water. If items cannot be stored onsite, make arrangements ahead of time for delivery of supplies (Note: during a large-scale water outage, numerous entities may be vying for the same resources/vendors). The following are some examples of supplies that would reduce water need:

- Disposable linens and uniforms
- Waterless hand sanitizer
- Sponge bathing supplies
- Portable toilets

Alternate Water Supply Overview

Anticipated Length of Outage 8 hours or less

- Determine the need to limit available water supplies to critical functions only, as evaluated in water use audit.
- Use bottled water for drinking.
- Use large containers (e.g., 5- & 10-gallon) for food prep, hand washing, and other specialized needs.
- Use large containers and buckets for toilet flushing.
- Use back-up groundwater well(s), if available.
- Use non-potable water for HVAC, if appropriate.
- Label faucets as NON-POTABLE / DO NOT DRINK.

- Consider actions that may be necessary if outage continues longer than 8 hours.

Anticipated Length of Outage unknown or greater than 8 hours

- Consult with water utility, health department, and response agencies in the area.
- Assess the feasibility of potential actions and alternative water supply options.
- Limit available water supplies to critical functions only.
- Label faucets as NON-POTABLE / DO NOT DRINK.
- Use existing and nearby storage tanks.
- Use other nearby sources.
- Use tanker-transported water.
- Use bladders or other storage units.
- Use portable treatment units with nearby sources, if appropriate.

Understand DC Water's Role

When planning for an emergency, it is helpful to understand DC Water's role in emergency response. The following outlines what DC Water can and cannot assist with in the event of an emergency.

- Cleanup and damages are most often the responsibility of the property owner. The property owner is also required to maintain the sewer service line and remove any clogs in the lateral line between the facility and the utility owned main. Determine the feasibility of purchasing an insurance policy or rider to existing policies to cover future cleanup and damage expenses from sewer backups.
- Sewer main or lateral line backups or clogs caused by accidental occurrences or from weather-related events that result in property damage or other liabilities are most often not the responsibility of DC Water.
- DC Water generally does not pay for cleanup costs or damages that result from sewer backups. If appropriate, provide additional information to DC Water to indicate that they are responsible, call (202) 787-2052 to file a claim. A detailed investigation is required prior to DC Water making a final determination as to the cause of the backup.

Alternate Water Source Details

Option	Description	Implementation Requirements	Capacity/ Scalability
Bottled Water	Distribute bottled water at distribution sites.	Vendor contract or contract agreement with other utilities for aid	Determined by vendor availability and local storage capacity (if storing bottles on-site)
Reverse osmosis	Treat saline water sources, such as saline ground water and ocean water.	<ul style="list-style-type: none"> • Water source • Power source • Mode of transport to distribution sites 	0.5-1.0 MGD units
Filtration	Treat untreated local water sources by ultra filtration, microfiltration, GAC, or other filtration methods.	<ul style="list-style-type: none"> • Water source • Pumps/intake • Chemicals • Power source • Operators • Distribution points (into system or to packaging) 	0.5-1.0 MGD
Point-of-Use Treatment	Use boil water notices for contamination that can be treated by boiling. Other options include household bleach disinfection, purification tablets or manual filters.	<ul style="list-style-type: none"> • Power in customer homes • Functioning distribution system 	Applicable over any scale demand
Bottle In-house	Bulk water can be bottled at the source prior to transport and/or distribution.	<ul style="list-style-type: none"> • Bulk supply of water • Power source • Packaging material • Operators 	Up to 120 packages per minute (2.5 gal or less) (300 gpm ~ 0.4 mgd)
Bag In-house	Bulk water can be bagged at the source prior to transport and/or distribution.	<ul style="list-style-type: none"> • Bulk supply of water • Power source • Two operators 	1-2.5 gal bags, 12-15 bags/min
Stationary bladders	Distribution can take place at the water source from large (not transportable) bladders.	<ul style="list-style-type: none"> • Water source near an appropriate distribution site • Pipe and spigot apparatus • Individuals must bring containers • Staffing and operators 	10,000-100,000 gal

Option	Description	Implementation Requirements	Capacity/ Scalability
Bladder transport	Small bladders that can be transported on a truck bed can be brought to distribution sites.	<ul style="list-style-type: none"> • Local water source • Pipe and spigot apparatus • Individuals must bring containers • Truck beds appropriate for transporting full bladders and forklifts, etc. • Functioning roadways 	Up to 6,000 gal
Transport in tanker-trucks	Utilities can make agreements with companies in the area that have access to potable tanker trucks (e.g., dairy trucks) – or may have some on hand.	<ul style="list-style-type: none"> • Contract with company to use trucks in an emergency • Potable water source • Distribution method (e.g., packaging on-site) • Functioning roadways 	3,000-20,000 gal

* Costs will depend on multiple factors including size, duration, site conditions, equipment availability, security considerations, and degree of infrastructure required.

Water Storage Pictures

Pillow tanks:



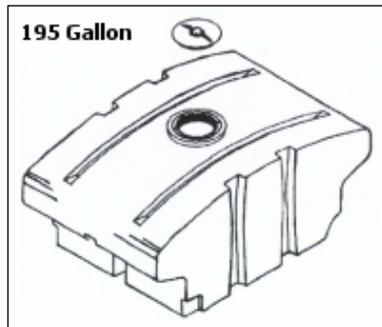
Bladder tanks:



Onion water tank with removable cover:



Pickup truck tank:



Appendix 3: Planning Worksheet

Good business planning includes reducing risk and strengthening resiliency to overcome adverse events. Water supply rarely gets the attention it deserves. The Water Emergency Planning Tool, produced by Cornell University and the New York Extension Disaster Network, consists of a set of questions that can help you evaluate the importance of a constant supply of good quality water for your operation, and how you can become better prepared to respond effectively if your water supply is compromised. How would you answer the following questions about your business?

1. Do you know how long your business could operate if water use was restricted or if the water supply was suddenly and completely interrupted?
2. Do you have a plan to help minimize business disruption if there is a problem with your normal water supply?
3. Do you have an emergency shut-down procedure for a water supply emergency? Have employees been trained and have they recently practiced the procedure?
4. Do you have a crisis management team that is authorized to provide information to stakeholders (suppliers, employees, customers, and other affected parties), and authorized to make critical business decisions to respond to a water emergency? Is there cross training and backup for these individuals?

If you cannot answer “yes” to these questions, then this Planning Tool can help you become better prepared for a water shortage or water contamination situation.

Assessing your current situation

This section provides an assessment or “snapshot” of the importance of water for your operation.

The assessment includes the water system.

1. Who is your water utility? [Name, street address, email address, phone number, cell phone number, afterhours contact, account number. For some areas, there are networks of water utilities. Your local water utility may obtain water from a larger water utility.]

2. What is your water utility’s water source? [well, spring, stream or river, lake, reservoir, another water utility]

3. Has your water utility experienced curtailments or interruptions in the water supply? (yes/no)

a) If yes, what was the reason for the interruption or curtailment?

b) Has an interruption or curtailment affected your business, and if so, how?

4. How long could you continue to run your operation under the following water supply reduction scenarios? 25% reduction _____ 50% reduction _____ 100% loss of water service _____

5. Is your water utility required to preferentially restore service to critical services such as hospitals, residential, institutions, etc. before service to your business? [Ask your water utility for their policy]

6. Does your water utility have inter-connections with other utilities that can provide back-up water service during an emergency?

7. Does your facility have a valve system for water coming into the plant that can be easily and quickly closed so that you can prevent contaminated water from entering your facility?

a) Do designated employees know where the valve system is located and how to operate it?

b) When was the last time the valve was operated? Did the valve fully close and seal?

8. How much potable water is typically held in storage at your site?

a) What is this stored water used for?

b) How long could your business operate using stored water?

c) Can the volume of stored water be readily increased?

d) How do you maintain this stored water safely?

9. Can you store or hold wastewater on site? How much?

10. Do you have a plan for how to minimize the generation of wastewater should the need arise [e.g., difficulty at the wastewater treatment plant that receives your discharge]?

11. Under what circumstances would a water emergency be declared for your operation? (Answer YES or NO)

a) Reduced availability ___ Volume curtailment ___ Lower pressure

- b) No availability ___Short term (hours)___Long term (days)___
- c) Contamination (e.g., boil order) ___
- d) Discoloration, cloudy, turbid___
- e) Sediment___
- f) Stored water supply runs out___
- g) Other___

Preparedness Planning

An effective plan and exercise program identifies areas that can be improved, and then responders can implement necessary changes. If you do not have a water emergency operations plan, the information gathered by using this tool can help you develop one. If you already have a water emergency plan, using this tool can help you evaluate and improve your plan. Any plan designed for your operation should be fully understood by your employees. Employees should know the procedure for dealing with water availability or water quality problems. The plan should be exercised to ensure that everyone knows what to do and who to contact in the event of a water emergency.

Process

This section describes the operations that occur in your business, including production line processing, in which water is an ingredient, or is needed for start up, clean up, sanitation, heating, or cooling.

1. How much water do you use per week, per month, per year? [Use your monthly bill if based on volume or metered volume to determine how much you use.]
per Week___ per Month___ per Year___
2. Is the daily/monthly/yearly water use relatively constant, or does it vary? If it varies predictably over time (for example, seasonally) when and by how much?

3. How much water is needed to complete an orderly shutdown of the facility? Do you have the ability to store this amount of water on site? If not, what are the implications of running out of water before an orderly shutdown is completed?

4. Have you developed various water supply reduction/ loss scenarios and evaluated their impact?

5. Have you identified and evaluated steps you could take to lessen the potential impact of an interruption of water supply to your business? Consider the following examples:
 - a) With advanced warning, increase storage and stockpile resources that reduce water usage (e.g., hand sanitizer, paper products, bottled water)

 - b) Shift to on-site water sources [e.g., stored water or emergency wells]

 - c) Build up water volumes held in on-site water storage

d) Begin an orderly shutdown using available on-site supplies, to allow for an efficient start up

e) Shift critical production to other unaffected locations, if applicable

f) For any of the above, is there a well-defined crisis management chain of command that can mobilize quickly to make critical business decisions? Can decisions be made quickly, under rapidly changing conditions?

6. If services/processing needs to be reduced or shutdown, how would you continue to serve your customers?

7. Prioritize the list of critical operations that would be affected by a disruption in water quantity, identify the person(s) in charge of those operations, and identify the response options they should consider.

Operation Staff in Charge of Response

Prioritize the list of critical operations that would be affected by a water contamination incident, identify the person(s) in charge of those operations, and identify the response options they should consider.

This section asks about anyone who provides some service or function for you, including managers and decision makers, or who works for you, or is otherwise involved in the operation. Any plan designed for your operation should be fully understood by all employees. Employees should know the procedure for dealing with water availability or water quality problems. The plan should be exercised to ensure that everyone knows what to do and who to contact in the event of a water emergency.

1. Who is authorized to make the decision to activate a water emergency operations plan? In their absence who is authorized?

2. In your business operation, is it a single person, or a team, that is responsible for responding to a water shortage or contamination emergency?

a) If it is an individual, has this responsibility been formally designated and their role communicated to the organization?

b) If it is a Water Emergency Operations Team, has this responsibility been formally designated and their role communicated to the organization?

3. Does the Water Emergency Operations Team include all critical business functions and are they authorized to make decisions and provide important information to employees, customers, suppliers, the media, government agencies, and other stakeholders?

4. Is there cross training and/or backup for the individual(s) with responsibility for water emergency operations?

5. How are workers notified about activation of the water emergency operations plan?

6. Do you have an emergency shut-down procedure?

a) Who is the shut-down manager for each shift?

b) Who is the backup in their absence?

c) Are workers on all shifts trained to be able to initiate emergency shut-down procedures?

d) When was the last time the procedure was fully executed? Did all systems function as required?

7. Water supply emergencies can result from technological failures, human error, acts of nature, or intentionally harmful actions. Do workers know how, and to whom, to report suspicious activities or operational abnormalities?

8. Have all water related critical or sensitive areas of the facility been identified?

a) Has security been evaluated for these areas?

b) Is access to critical or sensitive areas of your facility controlled/limited to designated personnel? (List those with access and authorization.)

Activating your Water Emergency Operations Plan

1. If your water emergency operations plan needs to be activated, does your business have a written procedure that describes how to:

a) Notify key customers and suppliers?

b) Halt or redirect shipments/supply chain?

c) Implement alternative water source?

2. Can the water emergency operations plan be activated in stages until the extent of the emergency is determined?

3. When did you last exercise your water emergency operations plan, and what changes were made to improve emergency preparedness?

4. Have you included these partners in developing a water emergency operations plan? (If you have not included these partners, you should consider doing so.)

Answer with YES or NO.

Current water supplier, (water authority, municipality, etc.) ____

Local Emergency Management Agency ____

Local municipal or government officials ____

Your customers ____

Your suppliers ____

Potential alternative water suppliers ____

Transport providers for product, supplies, and water ____

Insurance provider ____

(Other, please list) ____

5. Do you have an up-to-date emergency call list including water utilities, workers, suppliers, and customers?

a) If you have a list, how often do you update it?

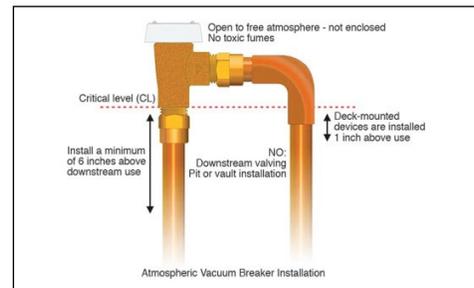
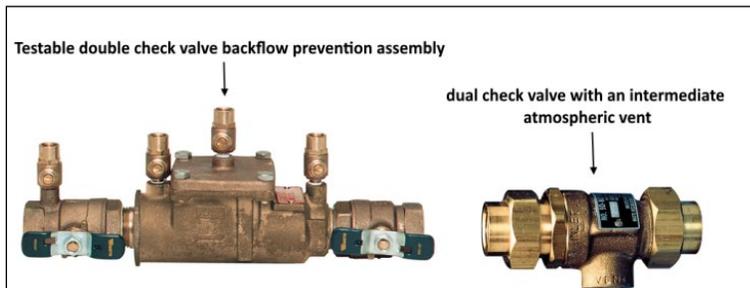
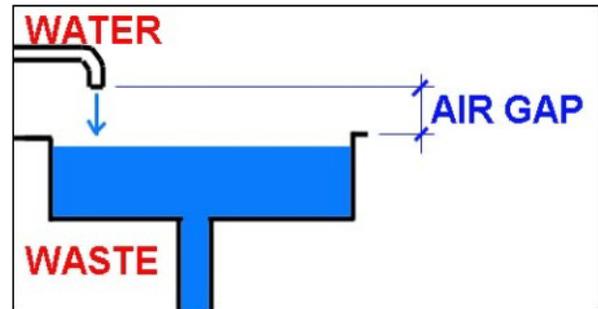
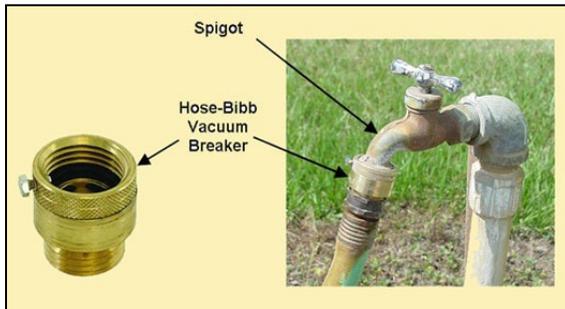
Appendix 4: Maintenance and Inspection

Change Filter

Work with maintenance staff, plumbers, and filtration system contractors to ensure that filters are changed at the prescribed frequency.

Evaluate the Backflow Prevention System

A backflow prevention system is meant to prevent the flow of non-potable water into a drinking water supply. Below are some examples of what a backflow prevention device or air gap may look like. The director or maintenance staff should be able to show where backflow prevention devices are located at each facility.



Reduced pressure zone assembly

- Backflow preventers include testable assemblies and non-testable devices and are installed according to DC Construction Codes (<https://dob.dc.gov/page/dc-construction-codes>). The codes specify when backflow prevention assemblies must be installed on water supply lines to

boilers, chillers, irrigation, and fire sprinkler systems and to a site's water service connection. The code also specifies when backflow devices must be installed on hose bibbs and utility sinks. Examples of backflow prevention assemblies include a reduced pressure zone assembly and a dual check valve assembly. Examples of backflow prevention devices are a hose-bibb vacuum breaker, atmospheric vacuum breaker, or dual check with atmospheric vent.

- Backflow prevention assemblies should be tested by a contractor that has registered with the DC Water Third Party Portal (<https://3pp.dewater.com>). A list of registered inspectors is posted at (<https://www.dewater.com/backflow-inspectors>). Registered inspectors will test your backflow prevention assemblies and report the results to the Third Party Portal. However, you can register as a property manager to have read-only ability to see the backflow prevention assemblies at your property. Instructions on registering and navigating the Third-Party Portal are provided below. Contact the DC Water Customer Compliance Services at 202-364-3138 or bpa@dewater.com.

Determine Nearby Cross Connections

- A cross-connection is a point in the drinking water system where a contaminant or non-potable water can potentially enter the drinking water system. Examples of cross-connections include connections to lawn irrigation (residential and commercial), fire sprinklers, swimming pools, boilers, cooling towers, chillers and other industrial systems which require water. Backflow preventers and/or air gaps must be used on cross-connections to prevent the undesired flow of contaminants into the water supply. Property owner, manager, or facilities and maintenance service providers are responsible for ensuring that backflow preventers are installed correctly and maintained as required by the District of Columbia Construction Codes (<https://dob.dc.gov/page/dc-construction-codes>) and District of Columbia Municipal Regulation Title 21 Chapter 54².
- More information about cross connection control is available at <https://www.dewater.com/compliance>, 202-364-3144, or bpa@dewater.com
- Follow these tips to reduce the risk of contamination through a cross connection control plan:
 - Learn how to eliminate or control cross connections with backflow preventors.
 - Do not submerge hoses or place hoses where they could become submerged, such as sinks, tubs, or pools.
 - Install hose bibb vacuum breakers on hose spigots.
 - Install backflow preventers as required by DC Construction Codes (<https://dob.dc.gov/page/dc-construction-codes>)
 - Contract with registered backflow preventer inspectors (<https://www.dewater.com/backflow-inspectors>) to inspect your backflow prevention assemblies annually as required by District of Columbia Municipal Regulation Title 21 Chapter and to survey your plumbing systems every five years.
 - Immediately replace or repair any backflow prevention assembly that fails inspection within 10 days.

Where is my building connected to water mains?

- Determine where the facility or facilities are connected to the water main(s) by viewing “as built” drawings or ask DC Water for assistance. The information can be used to determine if/when water main maintenance or repair will affect operations or facilities.

- Contact DC Water if a main break occurs nearby using the phone, DC Water website.

DC Water's Water Response Protocol

The following is DC Water's response protocol for a water main break.

1. A leak is reported as a possible water main break.
2. Crews at DC Water's Command Center dispatch an investigator to the scene.
3. If the investigator determines that the leak is a water main break, they also determine whether the break can hold long enough to be scheduled for repair or if it is an emergency. The leak is assigned a priority categorization, from 1-5, with 5 being the highest priority. The ranking is determined by the number of impacted residents, impacted critical customers, and the level of property damage occurring.
4. If the leak has damaged the road or sidewalk, the area must be blocked off. If possible, traffic will be routed around it; however, at times, the street must be closed completely. DDOT and MPD are notified by the DC Water Command Center. In cold weather, a salt truck may be dispatched if the water has caused icy roadway conditions.
5. The Command Center contacts the foreman, of the crew on duty for emergency repairs, to make notification of the newly identified break and its priority.
6. The Command Center notifies Miss Utility to send someone to the site to mark the utility lines. This step is required by law and DC Water may not begin to excavate until the area has been marked.
7. Heavy equipment is brought in for the excavation. Some excavations can be very tricky, depending on what is underground and repair crews may have to dig by hand around gas or electric lines.
8. Once the crew reaches the main, they re-route the water to minimize service disruption by closing nearby valves. This process helps them isolate the main they are working on to stop the water flow while they work.
9. Crews inspect the pipe and plan the best repair or replacement. At times, breaks require unique parts to be repaired and crews must procure them. This can take hours or days, depending on the specialty of the part.
10. If the break is complicated and the repair time long, DC Water crews will install metal plates on the roadway to alleviate traffic disruption during rush hours.
11. Once the water main is repaired, the main must be re-charged. This process can take up to an hour. On rare occasions, the main may break again as the water being turned on could cause intense pressure in the system.
12. Once the repair is complete and the main has been re-charged, the road or sidewalk must be repaired.

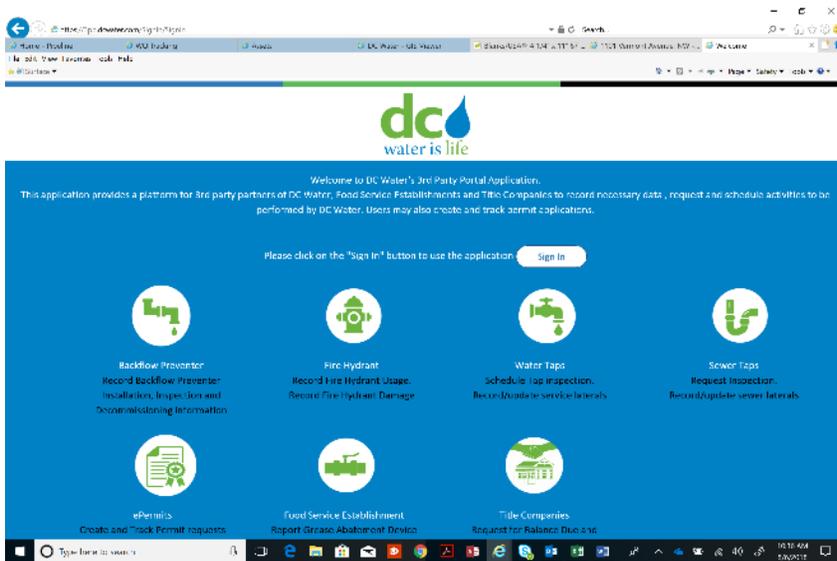
Third-Party Portal Registration and User Guide

This application provides a platform for 3rd party partners of DC Water, Food Service Establishments and Title Companies to record necessary data, request, and schedule activities to be performed by DC Water. It also allows users to submit and track permit applications.

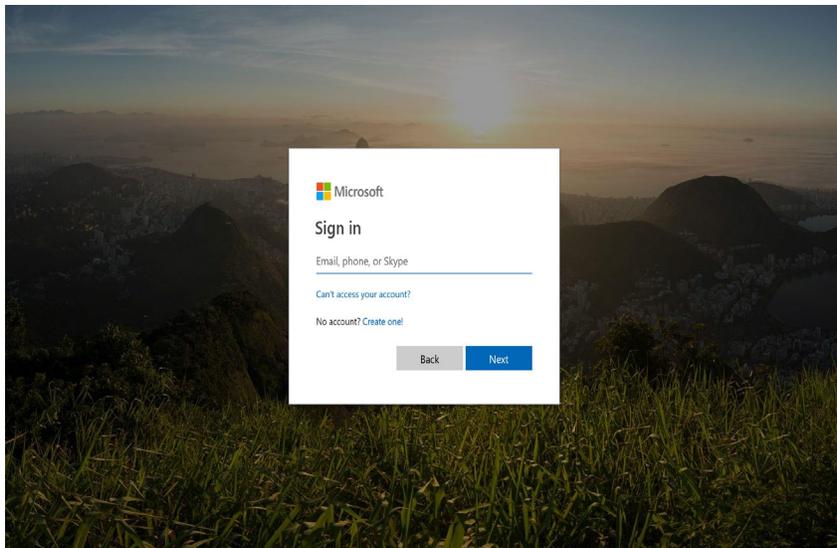
Initial Registration

Step 1: Go to <https://3pp.dewater.com>

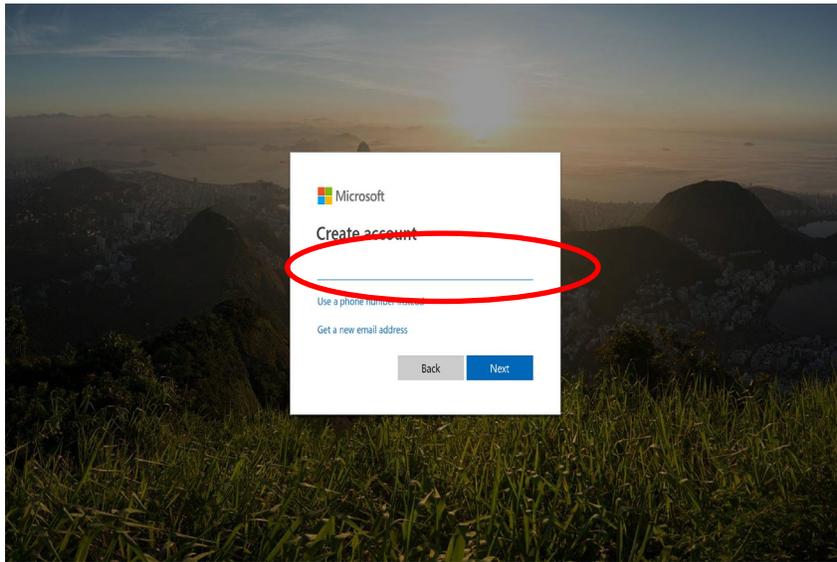
Step 2: Click on Sign In button.



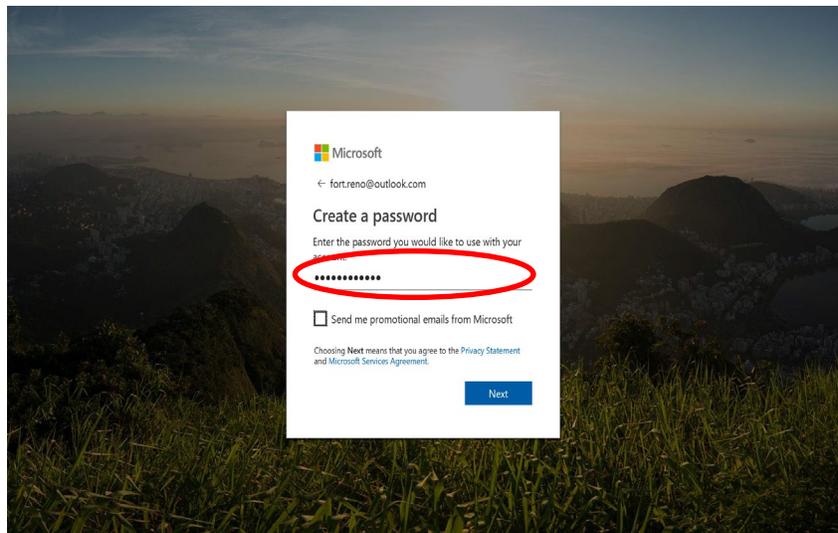
Step 3: Click create one.



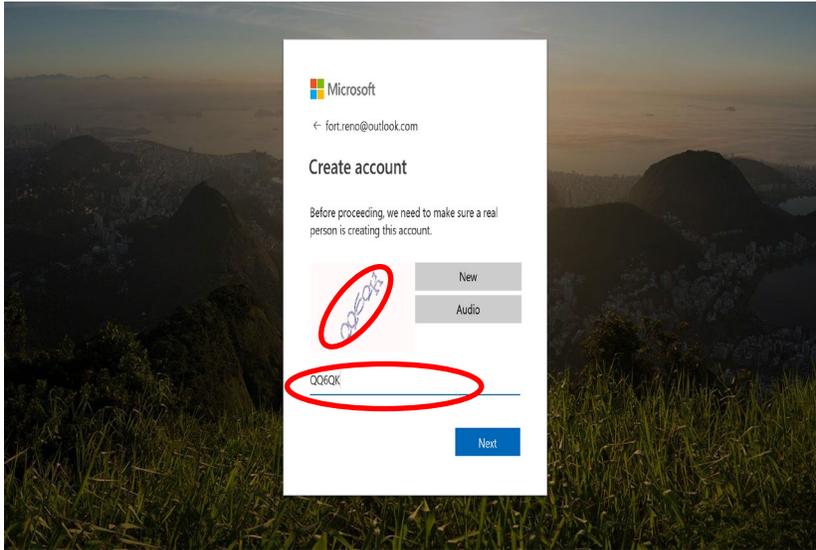
Step 4: Enter email address and click next.



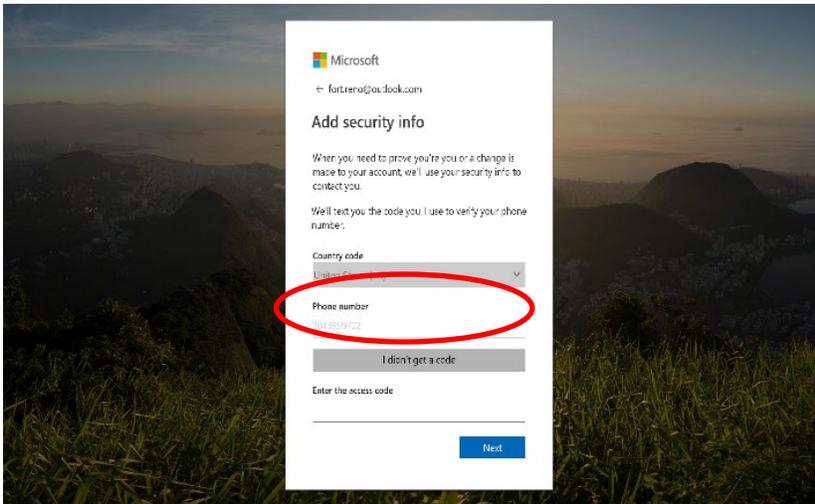
Step 5: Create a password.



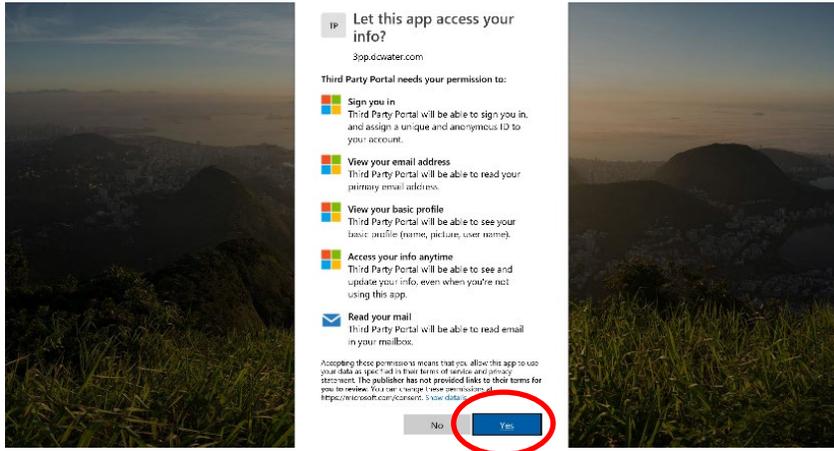
Step 6: Enter verification code.



Step 7: Enter phone.



Step 8: Accept Microsoft Policy. Note: DC Water does not monitor any emails and this is the standard policy from Microsoft.



Step 9: Fill in all required (*) Personal Information and select Other under Registration Type.

Registration

Personal Information

First Name * Albert Last Name * Boateng

Email ID * bpa-testing@outlook.com Alternate Email ID albertboateng@gmail.com

Send BPA notifications to Alternate EmailID

Phone Number * 202-364-3145 Alternate Phone Number 10 digit numeric characters

House Number * 3900 Street Name * Donaldson Pl

House Number Suffix NW Apt/Suite/Unit Number

City * Washington State * DC- District of Columbia

Quadrant NW Zip * 20037

Registration Type

Food Service Establishment Title Company All Other Services

License Information

© District of Columbia Water and Sewer Authority 5000 Overlook Avenue, S.W., Washington, DC 20032-5212 202-787-2000

Step 10: Click on BPA Propert Manager and Fill in all required (*)Information.

License Information

Select Services

Backflow Preventer Installer Backflow Preventer Inspector Backflow Preventer Property Manager

Fire Hydrant User Water Taps Sewer Taps

Company Information

Check this box if the Company Information is the same as your Personal Information

Name * ABC Property Management

Phone * 202-123-4567 Email * Any e-mail valid format like x@y

House Number * 123 Street Name * Main Ave

House Number Suffix Se Apt/Suite/Unit Number

City * Washington DC State * DC- District of Columbia

Quadrant SE Zip * 20032

Review

© District of Columbia Water and Sewer Authority 5000 Overlook Avenue, S.W., Washington, DC 20032-5212 202-787-2000

Step 11: Click Review then Confirm. Click edit if you find errors.

License Information

Select Services

Backflow Preventer Installer Backflow Preventer Inspector Backflow Preventer Property Manager

Fire Hydrant User Water Taps Sewer Taps

Company Information

Check this box if the Company Information is the same as your Personal Information

Name * ABC Property Management

Phone * 202-123-4567 Email * bpa-testing@outlook.com

House Number * 123 Street Name * Main Ave

House Number Suffix Se Apt/Suite/Unit Number

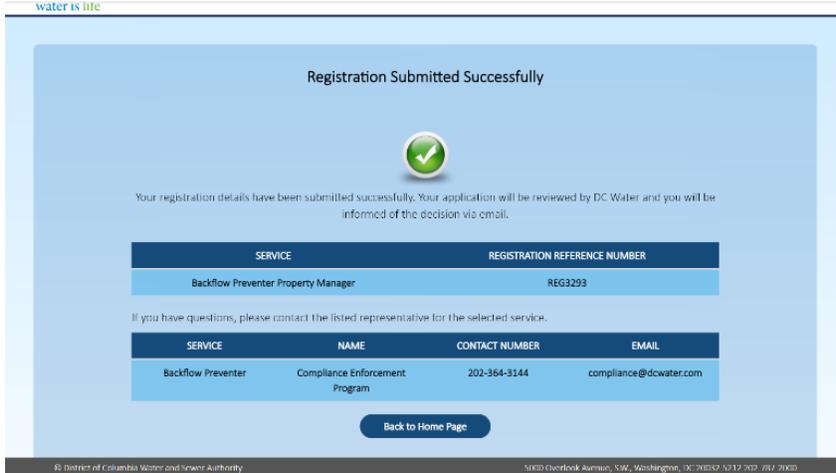
City * Washington DC State * DC- District of Columbia

Quadrant SE Zip * 20032

Confirm Edit

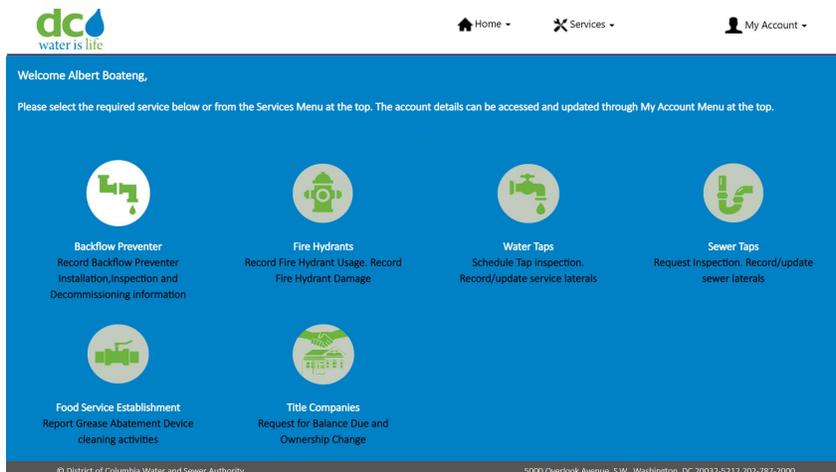
© District of Columbia Water and Sewer Authority 5000 Overlook Avenue, S.W., Washington, DC 20032-5212 202-787-2000

Step 12: If successful, you will see image below. Click Back to Home Page to go to main Page.

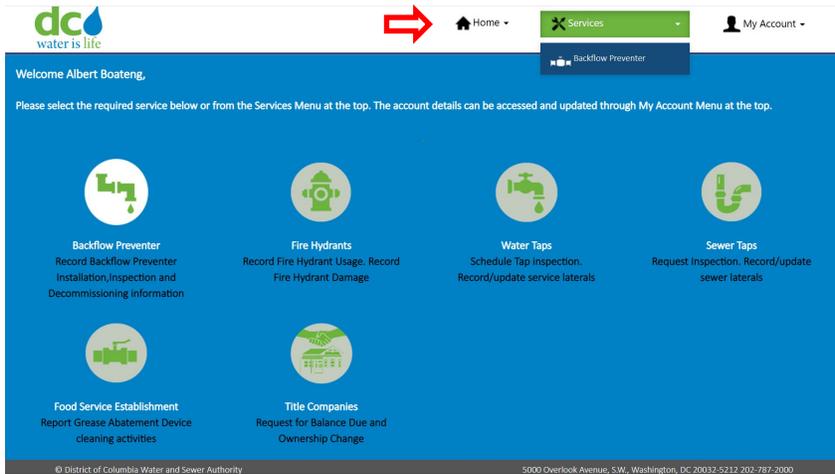


Searching for Backflow Prevention Assemblies

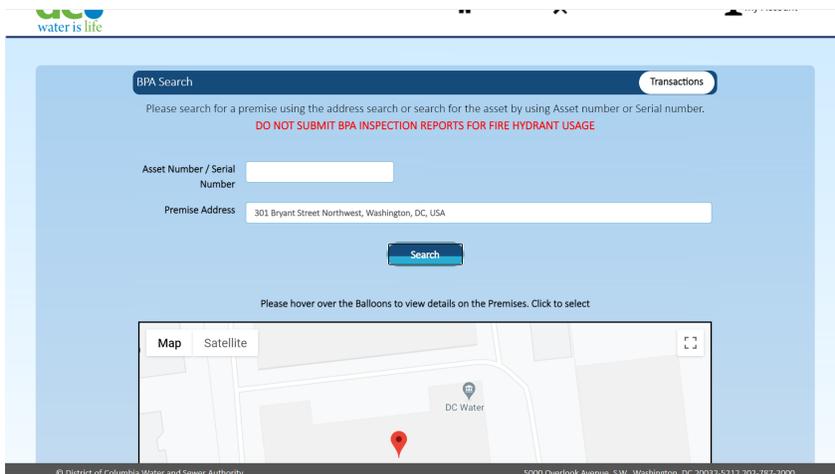
Step 1: After login, lick on Backflow Preventer logo/domain



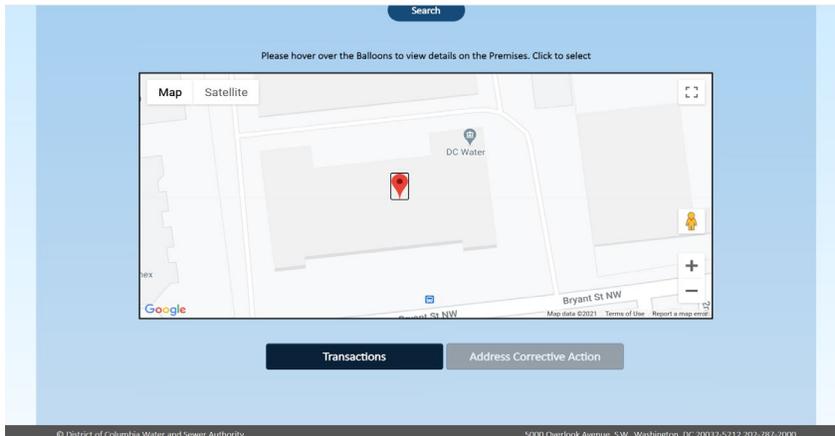
Step 2: Click Service, then Backflow Preventer



Step 3: Enter Premise Address or Serial Number and then Click on Search button.



Step 4: Hover and click the **Red balloon** to confirm the Premise address. Then click Transactions.



Note: **Corrective Action** will be colored blue when a corrective action is required. The corrective action can only be addressed by a registered contractor.

Step 5: View list of backflow prevention assemblies. Click on asset number for more detailed information of the asset.

Transactions Address Corrective Action

Please select an Asset from below table to proceed

PREMISE ADDRESS	BPA LOCATION DETAILS	SIZE	BPA TYPE	ASSET NUMBER	SERIAL NUMBER	SYSTEM TYPE	SERVICE TYPE
4200 WISCONSIN AVE NW Washington DC 20016-2143	PENTHOUSE	3"	Reduced Pressure Assembly	306340	134709	Cooling Tower	Auxiliary Service
4200 WISCONSIN AVE NW Washington DC 20016-2143	Greenberg Theater-Room 271	1"	Reduced Pressure Assembly	230638	W352591	Humidifier	Auxiliary Service
4200 WISCONSIN AVE NW Washington DC 20016-2143	MECH RM-LOWER LEVEL	1"	Reduced Pressure Assembly	226907	198284	Irrigation	Auxiliary Service
4200 WISCONSIN AVE NW Washington DC 20016-2143	FIRE DEPT/EMS	2 1/2"	Double Check Assembly	444987	NA	NA	Other

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Step 6: Enter search criteria to view asset information.

The screenshot displays the 'Transactions' search interface. At the top, there is a navigation bar with the DC Water logo, 'Home', 'Services', and 'My Account' links. The main content area is titled 'Transactions' and contains a search form. The form is divided into two sections: 'Service Address' and 'Search Transactions'. The 'Service Address' section has an 'Address' field with the value '4200 WISCONSIN AVE NW Washington DC 20016-2143'. The 'Search Transactions' section includes several input fields: 'Premise ID' (3059812), 'Asset Number' (306340), 'Transaction ID', 'Serial Number', 'Submitter EmailID', 'Transaction Type' (a dropdown menu with 'Select Transaction Type'), 'Submitted Date (From)', and 'Submitted Date (To)'. A 'Search' button is positioned at the bottom center of the form.

Notes:

1. Review backflow preventer assembly attributes and report discrepancies to bpa@dcwater.com
2. Where the property has more than 10 Assemblies, you may Click Next Page button at the right foot of the last enumerated asset.

Further questions and comments can be forwarded to BPA@dcwater.com and or **202-364-3144**.

Appendix 5: Preparing for and Responding to a Water Outage

Learn to Shut Off the Main Water Valve

When there is a water emergency, there may be a need to shut off the water supply to your building. Here is how:

- Look for the main valve where the water supply enters the facility (usually in the basement) or in a concrete box near the street.
- If the valve is outside, lift the cover with a large screwdriver.
- Then, use a pipe or crescent wrench to turn off the water. Mark the shut-off valve with fluorescent paint or tape so you can find it in the dark.
- Drain all water from the system, including your hot water heater, if you must evacuate when the weather is cold.

Prepare an Emergency Water Supply

Commercially unopened water is the safest and most reliable emergency water supply.

- Store at least 1 gallon of water per day for each person and each pet.
- Store at least a 3-day supply of water for each person and each pet. Try to store a 2-week supply if possible.
- Observe the expiration date for store-bought water; replace other stored water every six months.
- Store a bottle of unscented liquid household chlorine bleach to disinfect your water (see Appendix 7) and to use for general cleaning and sanitizing.

Cleaning and Storage of Water Containers

Use of food-grade water storage containers, such as those found at surplus or camping supply stores, is recommended if you prepare stored water yourself. Before filling with safe water, use these steps to clean and sanitize storage containers:

- Wash the storage container with dishwashing soap and water and rinse completely with clean water.
- Sanitize the container by adding a solution made by mixing 1 teaspoon of unscented liquid household chlorine bleach in one quart of water.
- Cover the container and shake it well so that the sanitizing bleach solution touches all inside surfaces of the container.
- Wait at least 30 seconds and then pour the sanitizing solution out of the container.
- Let the empty sanitized container air-dry before use OR rinse the empty container with clean, safe water that already is available.

Proper Water Storage

- Label container as "drinking water" and include storage date. Replace stored water that is not commercially bottled every six months.
- Keep stored water in a place with a constant cool temperature out of direct sunlight.

Learn How to Prevent Freezing Pipes

In an emergency, you may not have electricity, or you may have to leave your home/business for a long period of time. When this happens in very cold weather, pipes in your home/business that have water in them may freeze and break, causing water damage. To keep pipes from freezing, turn off the water flow. Here is how:

- Wrap water pipes in insulation before the cold weather comes.
- Allow water to drip slightly, if the weather is extremely cold, only when the home/business is occupied.¹

Evacuations

- Shut off water, gas, and electricity. Contact the power and gas company, and DC Water (202-612-3400) if you need instructions.
- Drain all pipes and water storage tanks. Flush toilets and drain them.
- Take bottled water. Each person will need a gallon of water per day.
- Have a plan to evacuate any pets safely, and make sure they have enough water and food.

Major Storms and Floods

- Flush house water lines to make sure the water is safe and clean. Contact DC Water at 202-612-3400 for instructions.
- Check utility lines and report any damage to your local power company.
- Avoid using any food or water that has come in contact with untreated water or sewage.
- Check sewage lines to see that they are intact before flushing toilets. Contact DC Water at 202-612-3400 for instructions on how to do this.

¹ All preceding information in Appendix 6 is referenced at “Preparation Helps Keep You and Your Family Safe” available at <https://www.dewater.com/preparing-water-emergency>.

Appendix 6: Safe Drinking Water During an Outage

When power goes out, water purification systems may not be functioning fully. Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. State, local, or tribal health departments can make specific recommendations for boiling or treating water in your area. Here are some general rules concerning water for drinking, cooking, and personal hygiene.

- Do not use contaminated water to wash dishes, brush your teeth, wash, and prepare food, wash your hands, make ice, or make baby formula. If possible, use baby formula that does not need to have water added.
- If you use bottled water, be sure it came from a safe source. If you do not know that the water came from a safe source, you should boil or treat it before you use it. Use only bottled, boiled, or treated water until your supply is tested and found safe.
- Boiling water, when practical, is the preferred way to kill harmful bacteria and parasites. Bringing water to a rolling boil for 1 minute will kill most organisms.
- If you don't have clean, safe, bottled water and if boiling is not possible, you often can make water safer to drink by using a disinfectant, such as unscented household chlorine bleach, iodine, or chlorine dioxide tablets. These can kill most harmful organisms, such as viruses and bacteria. However, only chlorine dioxide tablets are effective in controlling more resistant organisms, such as the parasite *Cryptosporidium*.

To disinfect water:

- Filter it through a clean cloth, paper towel, or coffee filter OR allow it to settle.
- Draw off the clear water.
 - When using household chlorine bleach:
 - Add 1/8 teaspoon (or 8 drops; about 0.625 milliliters) of unscented liquid household chlorine (5–6%) bleach **for each gallon of clear water** (or 2 drops of bleach for each liter or each quart of clear water). Add 1/4 teaspoon (or 16 drops; about 1.50 milliliters) of bleach **for each gallon of cloudy water** (or 4 drops of bleach for each liter or each quart of cloudy water).
 - Stir the mixture well.
 - Let it stand for 30 minutes or longer before you use it.
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using iodine:
 - Follow the manufacturer's instructions.
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using chlorine dioxide tablets:
 - Follow the manufacturer's instructions.

Model Notification Templates

DRINKING WATER WARNING

Name of Water System water is

Contaminated

BOIL YOUR WATER BEFORE USING

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one (1) minutes, and let it cool before using *or* use bottled water. *Boiled or bottled water* should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

What does this mean?

Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. *The presence of human pathogens in drinking water can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.* These symptoms are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

DRINKING WATER WARNING

Name of Water System water is

Contaminated

DO NOT DRINK TAP WATER

DO NOT DRINK THE WATER UNTIL DC WATER ANNOUNCES THAT THE WATER IS SAFE AGAIN. Nothing can be done on a local level to make the water safe to drink.

What does this mean?

Hazardous substances may enter the drinking water system that cannot be removed by boiling. In this case, tap water cannot be made safe to drink. Seek out alternate water sources for drinking, preparing formula, brushing teeth, hand washing, food preparation, or cleaning.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

DRINKING WATER WARNING

Name of Water System water is

Contaminated

DO NOT USE TAP WATER

DO NOT USE THE WATER UNTIL DC WATER ANNOUNCES THAT THE WATER IS SAFE AGAIN. Nothing can be done on a local level to make the water safe to use.

What does this mean?

Hazardous substances may enter the drinking water system that cannot be removed by boiling and can cause harm even when not drunk or ingested. In this case, tap water cannot be used in any way. Seek out alternate water sources for drinking, preparing formula, brushing teeth, hand washing, food preparation, laundry, bathing, watering plants, or cleaning.

Please share this information with all the other people who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Appendix 7: Preparedness for Specific Events

In the Event of a Flood

1. Flush water lines to make sure the water is safe and clean. Contact DC Water at 202-612-3400 for instructions.
2. Check utility lines and report any damage to your local power company.
3. Avoid using any food or water that has come in contact with untreated water or sewage.
4. Check sewage lines to see that they are intact before flushing toilets. Contact DC Water at 202-612-3400 for instructions.

In the Event of a Sewer Backup

1. Immediately report sewer backups to DC Water's Water and Sewer Emergency Line by calling 202-612-3400.
2. If DC Water determines the main sewer is clear, then hire a registered master plumber to clear the sewer lateral (the line servicing your property). Plumbers must file a report with DC Water if the blockage is in the public portion of the sewer lateral. If the plumber cannot unclog the line in the public portion of the sewer lateral, they must call DC Water for assistance. Customer Service Personnel are available 24 hours a day, 7 days a week to assist.
 - a. Cleaning and restoration specialist are listed below (this is not an all-inclusive list and does not denote an endorsement).
 - b. Capital City Restoration: 1(800) 785-8810
 - c. Service Master: 703-212-7000
 - d. Servpro: 202-737-8776
3. Services and fees rendered by the companies listed above are not the responsibility of DC Water. Names are provided for informational purposes only. Consult the local telephone directory under "Fire & Water Damage Restoration" for a list of specialists.

Preparing for a Hurricane

- Store at least 1 gallon of water per day for each person and each pet.
- Store at least a 3-day supply of water for each person and each pet. Try to store a 2-week supply if possible.
- Observe the expiration date for store-bought water; replace other stored water every six months.
- Store a bottle of unscented liquid household chlorine bleach to disinfect your water (see Appendix 7) and to use for general cleaning and sanitizing.

Water Containers (Cleaning and Storage)

- Use of food-grade water storage containers, such as those found at surplus or camping supply stores, is recommended if you prepare stored water yourself.
- Before filling with safe water, use these steps to clean and sanitize storage containers.
 - Wash the storage container with dishwashing soap and water and rinse completely with clean water.
 - Sanitize the container by adding a solution made by mixing 1 teaspoon of unscented liquid household chlorine bleach in one quart of water.
 - Cover the container and shake it well so that the sanitizing bleach solution touches all inside surfaces of the container.

- Wait at least 30 seconds and then pour the sanitizing solution out of the container.
- Let the empty sanitized container air-dry before use OR rinse the empty container with clean, safe water that already is available.

Proper Water Storage

- Label container as "drinking water" and include the storage date.
- Replace stored water that is not commercially bottled every six months.
- Keep stored water in a place with a constant cool temperature out of direct sunlight.
- Do not store water containers in areas where toxic substances such as gasoline or pesticides are present.

Appendix 8: After Action Report Guidance

The guidelines and tips for after action reflection and report writing were produced by the organization Better Evaluation.

Organizational learning requires continuous assessment of organizational performance, looking at successes and failures, and ensuring that learning takes place to support continuous improvement. The **After Action Review** (AAR) is a simple option for facilitating this assessment. It works by bringing together a team to discuss a task, event, activity, or project, in an open and honest fashion.

The systematic application of properly conducted AARs across an organization can help drive organizational change. As well as turning unconscious learning into tacit, it helps to build trust among team members and to overcome fear of mistakes. When applied correctly, AARs can become a key aspect of the internal system of learning and motivation.

There are many ways to conduct AARs. The simplicity at the heart of the tool means there is much potential to experiment with the process and find the right ways that will work best with the group and the work item under review. The whole process should be kept as simple and as easy to remember as possible. The essence of the AAR is, however, to bring together the relevant group to think about a project, activity, event, or task, and pose the following simple questions.

Question	Purpose
<ul style="list-style-type: none"> • What was supposed to happen? • What happened? • Why were there differences? 	These questions establish a common understanding of the work item under review. The facilitator should encourage and promote discussion around these questions. Divergences from the plan should be explored.
<ul style="list-style-type: none"> • What worked? • What did not? • Why? 	These questions generate reflections about the successes and failures during the project, activity, event or task. The question 'Why?' generates understanding of the root causes of these successes and failures.
<ul style="list-style-type: none"> • What would you do differently next time? 	This question is intended to help identify specific actionable recommendations. The facilitator asks the team members for crisp and clear, achievable, and future-oriented recommendations.

A **Retrospect** is a variation on the After Action Review and follows the same format, but involves asking the following more detailed questions:

- What did you set out to achieve?
- What was your plan to achieve this?
- How did this change as you progressed?
- What went well and why?
- What could have gone better?

- What advice would you give yourself if you were to go back to where you were at the start of the project?
- What were the two or three key lessons you would share with others?
- What next for you in terms of this project?
- Can you think of a story that summarizes your experience of work on this project?
- What should we have learned from this project a year from now?
- Are there any lessons for you personally?

Advice for CHOOSING this Option

- Here are some tips and traps:
 - AARs can be conducted almost anywhere and will vary in length. For example, a 15-minute AAR can be conducted after a one-day workshop, or a much longer meeting could be held to reflect on the strategy development process throughout a large organization.
 - AARs should be carried out immediately, while the team is still available, and memories are fresh. It is recommended that AARs be incorporated at key points during a project, activity, event or task in the early planning stage, although they are often completed at the end.
 - Participants of an AAR should include all members of the team. A facilitator should be appointed to help create an open environment, promote discussion, and draw out lessons learned.

Advice for USING this Option

- Here are some tips and traps:
 - Post the questions up on flipchart sheets prior to the session, with answers then written on the sheet as the session progresses. The completed sheets can then be stuck up around the room to serve as a reminder of progress.
 - Participants are participants, not a passive audience. The facilitator should prepare leading questions and may have to ask it of several people. The questions can be asked on an individual or a team basis. The team mechanism is ideal, but if suggestions are slow coming, the facilitator could go around the room asking everyone to express one thing that worked and one thing that did not.
 - If there are issues with either openness or time, it may be worthwhile to gather ideas first and then facilitate the discussion in the group environment.
 - Ideally, an uninvolved note-taker should be asked to minute the session. This will enable better capture of the learning.
 - The actionable recommendations should be as specific as possible. For example, an AAR following a workshop could have the following recommendation: 'Make more time to understand the audience.' A better AAR would be 'Contact the organizing body representative and ask about the range of participants before planning the workshop.'