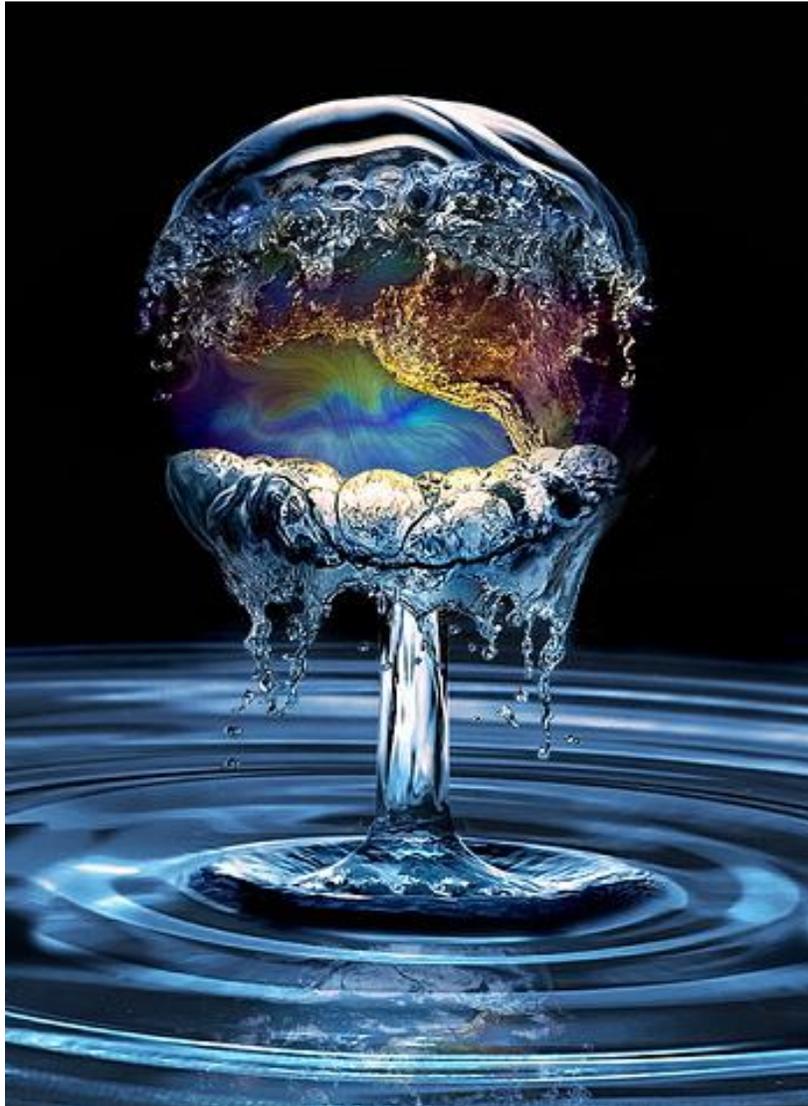


Kentucky Division of Water

Emergency Response Plan Template

Public Drinking Water Systems



Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division of Water

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Preface

The Kentucky Division of Water has developed this template to provide standard guidance to all public water systems throughout the state's different regions. No two public water systems are alike; therefore, no two Emergency Response Plans will be the same. This template can (and should be) modified to fit the specific needs of each public water system.

Preparing, maintaining, and exercising an Emergency Response Plan are all essential to the fluid operation of a public water system. An effective Emergency Response Plan will prepare each staff member for any emergency situation. In the best-case scenario, all infrastructure, equipment, and personnel will be ready and out of harm's way in the event of a natural or man-made disaster.

Instructions

Cover Page

This page is meant to be a quick introductory to the specific public water system. Fill in the tables with the appropriate, up-to-date information.

The Emergency Response Plan should be reviewed annually. When the review occurs (and if any changes are necessary), the *ERP Revision History* table should be updated.

Section 1 – Internal Chain of Command

The Internal Chain of Command should provide the reader with a simple list of public water system personnel, by order of importance. Not to say the last employee listed is of little importance; the first person on the list should have the most decision-making responsibility. Provide the name, title, and all applicable contact information in the table provided.

Section 2 – Emergency Notification

The Emergency Notification tables allow for a listing of most contacts that will possibly need to be reached during an emergency situation. Multiple tables have been provided with some pre-filled contact types. Fill in the name and title, phone number, cell/alternate phone number, and email address. Priority customers may include but are not limited to, hospitals, nursing homes, schools, wastewater treatment facilities, and industries. In Table f, at least two spokespersons should be named. (Maintaining alphabetical order is recommended for simplicity.)

Section 3 – Basic System Information

This section will provide any reader (water system personnel, emergency personnel, governing agency personnel, etc.) with a basic overview of how the public water system functions.

- a. The *Average and Maximum Daily Demands* (gallons) should be calculated using information found in the Monthly Operating Report. For the purposes of the ERP, use the most recent six months of MORs. Listed on the bottom of MOR page two are the average daily amount (gallons) of raw water treated and the daily maximum amount (gallons) of raw water treated during each of the six months. The sum of all six daily averages (gallons) divided by six months equals the Average Daily Demand. The highest of the six daily maximum amounts (gallons) equals the Maximum Daily Demand. Insert these two figures in the first two boxes of the table. The *System (or Design) Capacity* can also be found in the Monthly Operating Report. On MOR page one, the Design Capacity will be listed as either “gpm” or “MGD.” The ERP asked for both figures. Gallons per minute should be converted to million gallons per day by multiplying the number by 1,440 minutes. Million gallons per day should be converted to gallons per minute by dividing the number by 1,440 minutes.
- b. The locations of the listed resources should be documented in this table. Each item should be maintained in at least two different locations; this will allow easier accessibility in an emergency situation. If there are additional resources applicable to the specific public water system, add

this information to a blank row in the table. (Maintaining alphabetical order is recommended for simplicity.)

- c. Only public water systems with a water treatment facility should complete this table. A detailed schematic of the water treatment plant should be attached to the Emergency Response Plan in Appendix G. If the specific public water system does not have a water treatment facility, simply check the Not Applicable box on the right-hand side of the page.
- d. Only public water systems that utilize chemicals for disinfection should complete this table. "Location of the Feed Equipment" refers to the physical location of the equipment in the water treatment plant. "Location of Feed Point" refers to the order the chemical is fed in the water treatment process. If the specific public water system does not use chemicals for disinfection, simply check the Not Applicable box on the right-hand side of the page.
- e. Only public water systems that utilize chemicals (other than disinfection chemicals) should complete this table. "Location of the Feed Equipment" refers to the physical location of the equipment in the water treatment plant. "Location of Feed Point" refers to the order the chemical is fed in the water treatment process. If the specific public water system does not use other chemicals, simply check the Not Applicable box on the right-hand side of the page. If additional space is needed to document the system's chemical usage, see Appendix A.
- f. Source information is a very significant part of the ERP. After all, the source is where the water system starts. Depending on the specifics of each public water system, one of the tables (Wells, Surface Water, or Purchased Water) or a combination of the three tables will be completed.
 - i. For public water systems supplied by wells, fill in the first table with all applicable information. If additional space is needed to document the system's wells, see Appendix B.
 - ii. For public water systems supplied by surface water, fill in the second table with all the applicable information. If additional space is needed to document the system's wells, see Appendix B.
 - iii. For public water systems supplied by a purchased water source, fill in the third table with all applicable information. If additional space is needed to document the system's wells, see Appendix B.
- g. The documentation of location and basic information for all finished water storage facilities will be considered vital in most emergency situations. The information in this table will provide the reader with the exact location, type, and capacity of each finished water storage facility. Also, the reader will have access to the overflow elevation for each facility. If additional space is needed to document the system's finished water storage facilities, see Appendix C.
- h. In a public water system, the pumps are very critical for getting water from Point A to Point B. In most probable emergency situations, pumps must continue to function. This function may be reliant on an alternate source of energy. The information in this table will provide the reader with an idea of how much power is needed in a certain location to maintain pump functions. This table should be completed with information on all pumps in the water system, including but not limited to: low service pumps, high service pumps, backwash, and booster pumps. If additional space is needed to document the system's pumps, see Appendix D.

- i. Loss of power is a situation that many public water systems will find themselves in during most emergency situations. Without power, many operations of the treatment facility and distribution system are halted. The tables provided allow the reader to view what generators are available and/or where to find/rent generators when the need arises. The available generators (make and model), portability, size, fuel type, storage location, and all potential points of use should be listed in the table.

Section 4 – Specific Emergency Preparedness

Each table of this section should summarize the basic actions to be taken during each specific emergency. Many probable emergencies have been pre-filled as the titles of tables. Fill in the appropriate response to each emergency with as much detail as possible. If there are additional emergency situations for a specific public water system, add this information to a blank table in this section. (Maintaining alphabetical order is recommended for simplicity.)

Preparation should include information about the ways each emergency will be avoided or, if inevitable, how the public water system will get ready for the oncoming emergency. A general list of equipment needed to “weather the storm” should be included. Any specific precautions should be listed under preparations (i.e. filling up water storage tanks, staging equipment/personnel in safe shelter, etc.). The number of PWS staff members needed to maintain operations should be included. A specific list of PWS personnel/titles may be listed.

Impact should include all parts of the public water system that will be affected by the emergency situation. Will the public water system lose power? If so, what section(s) are most critical to equip with standby power generation? Could any parts of the physical infrastructure be damaged? If so, what can be done to avoid or minimize damages? As the impacts of the emergency are filled in, more ideas and details for the *Preparation* might surface.

Recovery will be a prioritized list of what tasks need to be handled first to get the public water system back into normal operations. Tasks will differ between specific emergencies. For instance, clearing snow to allow access may be the first step to recovery after a blizzard, but after a structural fire, the first step to recovery may be setting up an office/headquarters in an alternate location.

Section 5 – Training and Exercise Record

All emergency preparedness training and exercises should be documented in this section. Fill in the date of training/exercise, a detailed description of the event, and list all personnel involved. This record will provide the reader with a general summary of what types of training/exercises have been conducted and who has participated in the events. At least one component of the Emergency Response Plan should be exercised annually.

Section 6 – Internal Plan Approval Documentation

The first table of this section will provide the reader with a list of who was involved in the completion of the Emergency Response Plan. This information will be necessary if corrections need to be made or questions arise regarding the content of the ERP.

The second table of this section should include the name and title of the authorized officials responsible for approving the ERP, their signatures, and date. Everyone involved in the proper functioning of the public water system should be familiar with the ERP. Approval of the ERP by authorized officials will mark initial acceptance and the beginning of preparedness for the entire public water system.

Emergency Response Plan

PWSID:

AI #:

County:

Office Address

Mailing Address:

Physical Address:

Plant Address

Mailing Address:

Physical Address:

Primary Contact Information

Name:

Primary Phone #:

Secondary Phone #:

Fax:

Email:

Population Served:

Number of Service Connections:

O & M Manual Location:

1)

2)

ERP Locations:

1)

2)

3)

ERP Revision History

Date of Revision

Pages Revised

Explanation

Date of Revision	Pages Revised	Explanation

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Section 1 – Internal Chain of Command (*page 3*)

Section 2 – Emergency Notification (*pages 4-7*)

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- B. Priority Customers
- C. Service/Repair Contacts
- D. Utility Public Spokesperson
- E. Media Contacts

Section 3 – Basic System Information (*pages 8 – 12*)

- A. System Demand/Capacity
- B. Location of Pertinent Information
- C. Source Information
 - i. Wells
 - ii. Surface Water
 - iii. Purchased Water
- D. Treatment Plant Process
- E. Disinfection Chemical(s)
- F. Other Chemical(s)
- G. Finished Water Storage
- H. Critical Pumps
- I. Standby Power Requirements

Section 4 – Specific Emergency Preparedness (*pages 13 – 22*)

- A. Blizzard
- B. Chemical Shortage
- C. Drought
- D. Earthquake
- E. Flood
- F. Hazardous Material Release
- G. Ice Storm
- H. Irrate/Threatening Customer
- I. Loss of Positive Pressure
- J. Power Outage
- K. Staff Shortage
- L. Structural Fire
- M. Tornado/High Winds
- N. Vandalism/Sabotage
- O. Violation of Maximum Contaminant Level (MCL)
- P. Waterborne Disease Outbreak
- Q. Wildfire

Section 5 – Training and Exercise Record (*page 23*)

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Appendices

- A – Additional Chemical Information
- B – Additional Source Information
- C – Additional Finished Water Storage Information
- D – Additional Pump Information
- E – Kentucky-Specific Emergency Response Example
- F – Key Messages
- G – Schematic of Treatment Plant

Section 1 – Internal Chain of Command

Order	Name & Title	Contact Information		
		Office	Cell	Email
1		Home	Fax	Radio Frequency
		Office	Cell	Email
2		Home	Fax	Radio Frequency
		Office	Cell	Email
3		Home	Fax	Radio Frequency
		Office	Cell	Email
4		Home	Fax	Radio Frequency
		Office	Cell	Email
5		Home	Fax	Radio Frequency
		Office	Cell	Email
6		Home	Fax	Radio Frequency
		Office	Cell	Email
7		Home	Fax	Radio Frequency
		Office	Cell	Email
8		Home	Fax	Radio Frequency
		Office	Cell	Email
9		Home	Fax	Radio Frequency
		Office	Cell	Email
10		Home	Fax	Radio Frequency
		Office	Cell	Email

Section 2 – Emergency Notifications

a. Local Resources

Organization	Name & Title	Telephone #	Cell Phone #	Email Address
Emergency Management				
EMS				
Fire Department				
Government - City				
Government - County				
HazMat Team				
Health Department				
Local Law Enforcement				
State Law Enforcement				

b. Other Resources

Organization	Contact Name	Telephone #	Cell Phone #	Web Address
Division of Water (Field Office)				
Department for Environmental Protection	Duty Officer	(800)928-2380		dep.ky.gov
KYWarn	Duty Officer	(270)843-2291		kywarn.org
National Spill Response	Duty Officer	(800)424-8802		nrc.uscg.mil

e. Service/Repair Contacts

Name	Name & Title	Telephone #	Alternate #	Email Address
Bottled Water Service				
Bulk Water Supply				
Chemical Supplier				
Chlorine				
Other				
Contractor				
“Dig Safe”		811		kentucky811.org
Electrician				
Electric Utility				
Gas/Propane Supplier				
Generator Supplier				
Pipe Supplier				
Pump Supplier				
Rental Equipment				
Sewer Utility Company				
Telemetry/SCADA Company				
Telephone Company				
Transportation Department				
City				
County				
State				
Water Testing Laboratory				
Well Drilling Company				

f. Utility Public Spokesperson

	Name & Title	Telephone #	Cell Phone #	Email Address
Spokesperson				
Alternate #1				
Alternate #2				

g. Media Contacts

Organization	Contact Name	Telephone #	Cell Phone #	Email Address
Radio				
Television				
Newspaper				
Webpage				

Section 3 – Basic System Information

A. System Demand/Capacity

Average Daily Demand		
Maximum Daily Demand		
System Capacity	MGD	gpm

B. Location of Pertinent Information

Item	Location A	Location B
Approval(s) / Permit(s)		
Emergency Response Plan		
Inventories:		
Chemicals		
Distribution Materials		
Emergency Equipment		
Map(s) (Distribution System, As-Builts, Etc.)		
Material Safety Data Sheets		
Mutual Aid Agreements		
O&M Manual(s)		

C. Treatment Plant

N/A

	Plant #1	Plant #2
Year of Construction		
Type of Construction		
GPS Coordinates		
Latitude		
Longitude		
# of Filters		
Type of Filter Media		
# of Sedimentation Basins		
Type of Sedimentation Basins		
Capacity of Clearwell		

D. Disinfection Chemicals

N/A

	Chemical #1	Chemical #2	Chemical #3
Name of Chemical			
Type of Chemical Feed			
Location of Feed -			
Type of Pump & Capacity			
Location of Feed Point			
Location of Chem. Storage			
Minimum Amount to be Maintained (30-day storage)			

E. Other Chemicals

N/A

	Chemical #1	Chemical #2	Chemical #3
Name of Chemical			
Type of Chemical Feed			
Location of Feed -			
Type of Pump & Capacity			
Location of Feed Point			
Location of Chem. Storage			
Minimum Amount to be Maintained (30-day storage)			

F. Source Information

I. Wells

N/A

Additional Info in App B

	Well #1	Well #2	Well #3	Well #4
Well Tag #				
Location				
GPS coordinates				
Latitude				
Longitude				
Well Depth (ft.)				
Well Yield (gpd)				
Pump Type				
Pump Capacity				
Horsepower				
Volts/Amps				

II. Surface Water

N/A

Additional Info in App B

	Primary Intake	Intake #2	Intake #3	Intake #4
Location				
GPS Coordinates				
Latitude				
Longitude				
Critical Water Level or Flow				
Number of Pumps				
Pump Type				
Pump Capacity				
Horsepower				
Volts/Amps				

III. Purchased Water

N/A Additional Info in App B

	Primary Purchase Source	Purchase Source #2	Purchase Source #3	Purchase Source #4
Name				
# of Master Meters				
Maximum Monthly Purchase				
% of Population Served				

G. Finished Water Storage

N/A Additional Info in App C

	Tank #1	Tank #2	Tank #3	Tank #4
Location				
GPS Coordinates				
Latitude				
Longitude				
Type of Tank				
Capacity (gallons)				
Overflow Elevation				

H. Pumps

N/A Additional Info in App D

	Pump #1	Pump #2	Pump #3	Pump #4
Location				
Pump Type/Purpose				
Manufacturer				
Capacity (gpm)				
Horsepower				
Phase				
Volts/Amps				

I. Standby Power Requirements

N/A

Available Generators	Portable	Size	Fuel Type	Storage Location	Potential Points of Use

Section 4 – Specific Emergency Preparedness

A. Blizzard

Preparation

Impact

Recovery

B. Chemical Shortage

Preparation

Impact

Recovery

C. Drought

Preparation

Impact

Recovery

D. Earthquake

Preparation

Impact

Recovery

E. Flood

Preparation

Impact

Recovery

F. Hazardous Material Release

Preparation

Impact

Recovery

G. Ice Storm

Preparation

Impact

Recovery

H. Irate/Threatening Customer

Preparation

Impact

Recovery

I. Loss of Positive Pressure

Preparation

Impact

Recovery

J. Power Outage

Preparation

Impact

Recovery

K. Staff Shortage

Preparation

Impact

Recovery

L. Structural Fire

Preparation

Impact

Recovery

M. Tornado/High Winds

Preparation

Impact

Recovery

N. Vandalism/Sabotage

Preparation

Impact

Recovery

O. Violation of Maximum Contaminant Level (MCL)

Preparation

Impact

Recovery

P. Waterborne Disease Outbreak

Preparation

Impact

Recovery

Q. Wildfire

Preparation

Impact

Recovery

R. Other -

Preparation

Impact

Recovery

S. Other -

Preparation

Impact

Recovery

T. Other -

Preparation

Impact

Recovery

Section 6 – Plan Approval Documentation

The Emergency Response Plan was prepared by:

Name	Title/Organization	Date

The Emergency Response Plan is officially in effect when reviewed, approved, and signed by:

Name	Signature	Date

Appendix A – Additional Chemical Information

Disinfection Chemicals

	Chemical #4	Chemical #5	Chemical #6
Name of Chemical			
Type of Chemical Feed			
Location of Feed System			
Type of Pump & Capacity			
Location of Feed Point			
Location of Chem. Storage			
Minimum Amount to be Maintained (30-day storage)			

Other Chemicals

	Chemical #4	Chemical #5	Chemical #6
Name of Chemical			
Type of Chemical Feed			
Location of Feed System			
Type of Pump & Capacity			
Location of Feed Point			
Location of Chem. Storage			
Minimum Amount to be Maintained (30-day storage)			

Appendix B – Additional Source Information

I. Wells

	Well #5	Well #6	Well #7	Well #8
Well Tag #				
Location				
GPS coordinates				
Latitude				
Longitude				
Well Depth (ft.)				
Well Yield (gpd)				
Pump Type				
Pump Capacity				
Horsepower				
Volts/Amps				

II. Surface Water

	Intake #5	Intake #6	Intake #7	Intake #8
Location				
GPS Coordinates				
Latitude				
Longitude				
Critical Water Level or Flow				
Number of Pumps				
Pump Type				
Pump Capacity				
Horsepower				
Volts/Amps				

III. Purchased Water

	Purchase Source #5	Purchase Source #6	Purchase Source #7	Purchase Source #8
Name				
# of Master Meters				
Maximum Monthly Purchase				
% of Population Served				

Appendix C – Additional Finished Water Storage Information

Finished Water Storage

	Tank #5	Tank #6	Tank #7	Tank #8
Location				
GPS Coordinates				
Latitude				
Longitude				
Type of Tank				
Capacity (gallons)				
Overflow Elevation				

	Tank #9	Tank #10	Tank #11	Tank #12
Location				
GPS Coordinates				
Latitude				
Longitude				
Type of Tank				
Capacity (gallons)				
Overflow Elevation				

Appendix D – Additional Pump Information

Pumps

	Pump #5	Pump #6	Pump #7	Pump #8
Location				
Pump Type/Purpose				
Manufacturer				
Capacity (gpm)				
Horsepower				
Phase				
Volts/Amps				

	Pump #9	Pump #10	Pump #11	Pump #12
Location				
Pump Type/Purpose				
Manufacturer				
Capacity (gpm)				
Horsepower				
Phase				
Volts/Amps				

Appendix 1 – Kentucky Specific Emergency Response Example

SEVERE THUNDERSTORM

Preparation:

- Make sure all portable and permanent generators are functional and full of fuel.
- Place some portable generators in vital positions in case roadways become blocked during the storm.
- Fill water storage tanks as much as possible. (Harder for winds/tornadoes to damage full tanks.)
- Make sure chainsaws and other similar equipment are functional and full of fuel.
- Remind all PWS personnel of safety shelter locations.
- Make sure all data is backed up and all pertinent documentation is stored in more than one location.
- Cover and/or secure all equipment that may be damaged by hail, winds, etc.
- Maintain a storage supply of extra fuel for generators, trucks, and other equipment.

Impact:

- *Power Outage* – may result in the loss of pump function, source water intake, treatment plant operation, office operation, SCADA/telemetry.
- *High Winds* – may result in damage to infrastructure (tanks, buildings, etc.) or roadways blocked by downed trees.
- *Tornado Watch/Warning* – all PWS personnel should seek shelter and all equipment should already be secured / stowed safely.
- *Structural Fire* – may result in the loss of a water treatment plant, pump station, office, or any other building. Any pertinent information should already be stored in an alternate location. All personnel should already be informed of the evacuation plan.
- *Hail* – could damage infrastructure or harm personnel. Equipment should already be secured / stowed safely and personnel should seek shelter.

Recovery:

- All PWS personnel should be safely accounted for.
- Safe passage should be made to allow personnel to evaluate damages throughout the water system.
- Any necessary health advisories should be sent out regarding consumption of drinking water.

Appendix / – Key Messages

Health Advisory

Loss of Service

Loss of Pressure

Other -

Other -

Other -

Appendix G – Schematic of Treatment Plant

