# WATER SHORTAGE RESPONSE PLAN

1. **PURPOSE**

The purpose of the Water Shortage Response Plan is to provide guidance to Public Utilities staff, County Administration, and the customers of the Brunswick County Public Utilities during periods of drought and other events that result in a shortage of potable water. The Water Shortage Response Plan is intended to provide a framework of steps and activities to be implemented as conditions require.

# RESPONSIBILITY FOR DECLARATION OF A WATER SHORTAGE

Under the County’s current Water Emergency Ordinance, the Director of Public Utilities or his authorized representative is authorized to declare that a water emergency exists. Depending on the severity of the emergency, voluntary (Stage 1) and mandatory (Stage 2 and Stage 3) staged water use restrictions as described in this ordinance shall be imposed upon all water customers. This declaration shall be made after consultation with the Public Utilities staff and County Administration.

1. **WATER SHORTAGE RESPONSE ACTION LEVELS**

**STAGE 1 – WATER CONSERVATION ALERT**

A Stage 1 water shortage emergency may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there are three (3) consecutive days when water demand exceeds eighty percent (80%) of the total water plant production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment plant process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability, WTP construction activities, and/or raw water conditions or availability. These measures are targeted to reduce and modify water usage so that there are no consecutive three (3) day periods when water demand exceeds eighty percent (80%) of the total water plant production capacity and/or to modify peak demand periods and magnitudes such that instantaneous demands are reduced to a point that undue burden in not placed on the transmission or treatment infrastructure.

# STAGE 2 – WATER SHORTAGE WARNING

A Stage 2 water shortage emergency may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there are two (2) consecutive days when water demand exceeds ninety percent (90%) of the water production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability, WTP construction activities, and/or raw water conditions or availability. These measures are targeted to reduce water usage so that there are no consecutive two (2) day periods when water demand exceeds ninety percent (90%) of the total water plant production capacity.

# STAGE 3 – WATER SHORTAGE DANGER

A Stage 3 water shortage emergency may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there is one (1) day when water demand exceeds one hundred percent (100%) of the water production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability, WTP construction activities, and/or raw water conditions.

These measures are targeted to reduce water usage so that daily water demand does not exceed one hundred (100%) of the total water plant production capacity.

# NOTIFICATION PROCEDURES

Upon declaration of each stage of water shortage emergency, the following methods may be used to inform the County staff, wholesale customers, County retail customers, and Industrial Customers.

# PUBLIC NOTICE

The Public Utilities Department staff will draft a Public Notice announcing the Water Shortage Stage and the actions that water customers must take to comply with the Water Emergency Ordinance. The Public Notice will be provided by the County’s Public Information Officer to all media outlets that serve the Brunswick County area. The Public Notice will include phone numbers that customers may call with questions.

# WHOLESALE CUSTOMER NOTIFICATION

A copy of the Public Notice will be e-mailed or faxed to the Utilities Director for all of the County’s Wholesale Customers. The Public Utilities Director or his authorized representative shall call each wholesale customer to confirm the receipt of the Public Notice and to respond to any questions about the notice.

# TRAINING COUNTY STAFF

A copy of the Public Notice will be provided to the staffs of the Utilities Customer Service Division, Northwest Water Treatment Plant, 211 Water Treatment Plant, and Water Distribution Division. Depending on the stage, a list of possible questions with the recommended responses will be provided to the staff likely to receive calls from the public.

# DIRECT MAILING TO CUSTOMERS

Depending on the stage and severity of the event, the County may elect to send a direct mailing to all County water customers. In the event of an immediate need to reduce water consumption, a notice would be sent to all water customers. If the event is an expected event, an insert to the water bill would be the preferred method of communication.

**DIGITAL SMS NOTIFICATION TO CUSTOMERS**

Depending on the stage and severity of the event, the County may elect to send SMS messaging via CODE RED or other similar service to all County water customers. In the event of an immediate need to reduce water consumption, a notice would be sent to all water customers. If the event is an expected event, an insert to the water bill would be the preferred method of communication.

# NEWSPAPER ADVERTISEMENT

Depending on the stage, the County may elect to purchase space in the local newspapers to inform the public. The ad may include the language included in the Public Notice.

# STAGE CONDITIONS

The basis for the determination of a water emergency shall be the County’s ability to provide potable water to its customers. For a Stage 1 emergency, a declaration may be made when the potable water demand or the anticipated potable water demand will be eighty percent (80%) of the combined treatment capacity of the County’s Northwest Water Treatment Plant and the 211 Water Treatment Plant for more than three (3) consecutive days. If the available raw water supply or the treatment capacity is diminished, the eighty percent (80%) level will be determined based upon the amount of raw water available or treatment capacity available.

For a Stage 2 emergency, a declaration may be made when the potable water demand or the anticipated potable water demand will be ninety percent (90%) of the combined treatment capacity of the County’s Northwest Water Treatment Plant and the 211 Water Treatment Plant for more than two (2) consecutive days. If the available raw water supply or the treatment capacity is diminished, the ninety percent (90%) level will be determined based upon the amount of raw water available or treatment capacity available.

For a Stage 3 emergency, a declaration may be made when the potable water demand or the anticipated potable water demand will be one hundred percent (100%) of the combined treatment capacity of the County’s Northwest Water Treatment Plant and the 211 Water Treatment Plant for more than a twenty-four (24) hour period. If the available raw water supply or the treatment capacity is diminished, the one hundred percent (100%) level will be determined based upon the amount of raw water available or treatment capacity available.

The available raw water supply shall be determined by the capacity of the Lower Cape Fear Water and Sewer Authority to supply raw water to the County from its Kings Bluff Water Pump Station for the Northwest Water Treatment Plant. The raw water flow is measured at the pump station and at the Northwest Water Treatment Plant. The available raw water supply for the 211 Water Treatment Plant shall be determined by the combined capacity of the wells supplying the plant. The flow is measured at each well and at the plant.

# COMPLIANCE WITH THE PROVISIONS OF THE PLAN

The water plant staff shall monitor potable water levels pumped into the system at the plant and at the booster pump stations to determine the overall demand. By comparing the flow records prior to issuance of the declaration, the staff can determine the level of compliance in each of the pressure zones associated with the booster pump station. The water distribution staff will concentrate its efforts in those areas identified by the AMI/Sensus metering system with the highest levels of apparent non-compliance. The distribution staff will attempt to educate those property owners who are not in compliance with the declaration. After one warning, property owners would be fined for non-compliance.

# PLAN REVIEW AND ADOPTION

The draft Water Shortage Response Plan was provided to the County Public Utilities staff for review and comment. After those comments had been addressed, copies were provided to the County Manager, Utility Billing Manager, Communication Officer, and Director of Engineering Services for review. After their review and approval copies were provided to our wholesale customers for their review and comments. A draft copy of the plan was provided to the NC DENR staff in the Wilmington Regional Office. The draft copy will be advertised on the County’s website with instructions for making comments for at least 30 days prior to presenting to the Board of Commissioner’s for final approval. A final draft will be sent to the Board of Commissioners for approval. Amendments to the plan would follow the same process with Board of Commissioners approval required for all amendments.

# VARIANCES

All appeals for a variance must be submitted to the Director of Public Utilities in writing. The Director of Public Utilities will review the request and the following criteria will be used to determine if a variance can be granted:

* 1. Impact on the overall water conservation goals
	2. Potential property damage
	3. Potential alternative sources of water supply
	4. Volume of water to be consumed
	5. Duration of usage
	6. Number of similarly situated property owners

The Director of Public Utilities must provide a written determination on the request for a variance within three (3) working days of the receipt of the variance. If the request for a variance is denied, the property owner has the right to appeal the determination to the Board of Commissioners. The Board of Commissioners would hear the appeal at the next regularly scheduled meeting provided the appeal request is received at least fourteen (14) days in advance of the next meeting.

# EVALUATION

During the declaration of the Water Shortage Event, the County staff will monitor the water usage. A spreadsheet will be developed to track water produced at the plants. The pre-declaration usage will be compared to the post-declaration usage to determine an overall percentage reduction in demand. If the desired reduction in demand has not occurred, changes in the plan or enforcement of the plan will be recommended by the Utilities Director.

After the water shortage event has concluded, a post-event evaluation will be held. Changes in the Water Shortage Response Plan will be recommended to the Board of Commissioners based upon the problems and issues that were discovered during the event.

The plan will be reviewed/revised and approved no less than once every five years.

## ARTICLE V. - WATER EMERGENCY ORDINANCE

Sec. 1-13-141. - Introduction.

The county's public utilities department, henceforth referred to as the "department" and the board of county commissioners, henceforth referred to as the "commissioners" shall have the charge to protect the county's public water supply and to ensure that the benefactors of this system are assured an adequate supply of water even in times of water shortage. Water shortage can be the result of climatic conditions causing drought or it may be the result of a physical breech in the county's water supply system (i.e., mechanical failure, cut or broken water main, etc.) impeding the flow of potable or raw water supply.

(Ord. of 9-3-02)

## Sec. 1-13-142. - Water emergency response and management.

1. *Declaration of water emergency.* The director or his authorized representative is authorized to declare that a water emergency exists. Depending on the severity of the emergency, voluntary (Stage 1) and mandatory (Stage 2 and Stage 3) staged water use restrictions as described in this article shall be imposed upon all water customers.
2. *Staged water use restrictions.*
	1. *Stage 1—Water conservation alert.* A Stage 1 water shortage emergency may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there are three (3) consecutive days when water demand exceeds eighty (80) percent of the water production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability and/or raw water conditions. During a declared Stage 1 water shortage emergency the following voluntary water conservation practices shall be encouraged:
		1. Inspect and repair all faulty and defective parts of faucets and toilets.
		2. Use shower for bathing rather than bathtub and limit shower to no more than five (5) minutes.
		3. Do not leave faucets running while shaving, brushing teeth, rising or preparing food.
		4. Limit the use of clothes washers and dishwashers and when used, operate fully loaded. Operate dishwashers after the peak demand hours of 6:00 p.m. to 10:00 p.m.
		5. Limit lawn watering to that necessary for plant survival. Water lawns before the peak demand hours of 6:00 a.m. to 10:00 a.m.
		6. Water shrubbery the minimum required. Water shrubbery before the peak demand hours of 6:00 a.m. to 10:00 a.m.
		7. Limit vehicle washing to a minimum.
		8. Do not wash down outside areas such as sidewalks, driveways, patios, etc.
		9. Install water saving showerheads and other water conservation devices.
		10. Use disposable and biodegradable dishes where possible.
		11. Install water saving devices in toilets such as early closing flappers.
		12. Limit hours of water cooled air conditioners.
		13. Do not fill swimming or wading pools.
	2. *Stage 2—Water shortage warning.* A Stage 2 water shortage emergency may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there are two (2) consecutive days when water demand exceeds ninety (90) percent of the water production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability and/or raw water conditions. During a declared Stage 2 water shortage emergency the following activities shall be prohibited:
		1. Watering lawns, grass, shrubbery, trees, flower and vegetable gardens except by hand held hoses, container, or drip irrigation system. A person who regularly sells plants will be permitted to use water on their commercial stock. A golf course may water their greens. State and county licensed landscape contractors may water any plants by hand held hose or drip irrigation under a written warranty.
		2. Filling swimming or wading pools, either newly constructed or previously drained. Make up water for pools in operation will be allowed.
		3. Using water-cooled air conditioners or other equipment, in which cooling water is not recycled, unless there are health or safety concerns.
		4. Washing any type of mobile equipment including cars, trucks, trailers, boats or airplanes. Any persons involved in a business of washing motor vehicles may continue to operate.
		5. Washing outside surfaces such as streets, driveways, service station aprons, parking lots or patios.
		6. Washing the exterior of office buildings, homes or apartments.
		7. Using water for any ornamental fountain, pool, pond, etc., unless recycled.
		8. Serving drinking water in food establishments such as restaurants or cafeterias, unless requested to do so by a customer.
		9. Using water from a public or private fire hydrant for any reason other than to suppress a fire or other public emergency or as authorized by director or his authorized representative.
		10. Using water to control or compact dust.
		11. Intentionally wasting water.
		12. Commercial and industrial water customers shall achieve mandatory reductions in water usage through whatever means are available. A minimum reduction of twenty (20) percent shall be the target, however a greater target reduction percentage may be required depending on the severity of the water shortage emergency. Compliance with the reduction target shall be determined by the director or his authorized representative. Variances to the target reduction may be granted by director or his authorized representative to designated public health facilities.
	3. *Stage 3—Water shortage danger.* A Stage 3 water shortage emergencies may be declared in the event of an immediate water shortage, as so declared by state and/or local officials, or when there is one (1) day when water demand exceeds one-hundred (100) percent of the water production capacity. Water production capacity shall be defined as the maximum volume of water that meets or exceeds state and federal standards that the water treatment process can produce during a twenty-four (24) hour period. Water production capacity can vary depending on system component reliability and/or raw water conditions. During a declared Stage 3 water shortage emergency the following activities shall be prohibited, in addition to activities prohibited under Stage 2:
		1. Watering lawns, grass, shrubbery, trees, and flowers.
		2. Washing motor vehicles at commercial car wash establishments.
		3. Watering any vegetable garden except by hand held hose, container, or drip irrigation.
		4. Commercial and industrial water customers shall achieve mandatory reductions in water usage through whatever means are available. A minimum reduction of fifty (50) percent shall be the target, however a greater target reduction percentage may be required depending on the severity of the water emergency. Compliance with the reduction target shall be determined by the director or his authorized representative. Variances to the target reduction may be granted by the director or his authorized representative to designated public health facilities.
		5. In the event that the prohibition of the activities listed above is not sufficient to maintain an adequate supply of water for fire protection, all use of water for purposes other than maintenance of public health and safety shall be prohibited. Residential water use shall be limited to the amount necessary to sustain life through drinking, food preparation and personal hygiene.
3. *Compliance plan during Stage 2 and Stage 3 emergencies.* The director or his authorized representative may require that commercial and industrial water customers prepare plans detailing measures to be taken by them to achieve mandatory reductions in daily water usage during Stage 2 and Stage 3 emergencies. Such plans shall be completed within sixty (60) calendar days after receipt of notice to prepare them.
4. *Penalties for violation of mandatory restrictions.* Any user who is found to have failed to comply with any of the mandatory restrictions set forth in these regulations may be fined in accordance with the list of rates and charges currently in force for each violation.
5. *Authority to discontinue service.* Pursuant to the provisions of this article, water service may be temporarily discontinued for failure to comply with the mandatory restrictions in this article. All applicable penalty fees may be applied in the event of such service suspensions. In the event of continued non-compliance with this article, removal of meter and service will be deemed proper and service will be discontinued and tap fees and account deposits shall be forfeited.
6. *Appeals by customers of penalties and termination of service.* Any user who receives a penalty and/or has service terminated as a result of violations of the mandatory restrictions in this article may appeal upon notification to the director. The director shall be the final decision maker for appeals and shall transmit a written copy of the final decision by registered or certified mail within three (3) days after notification.
7. *Adoption and enforcement of ordinance by public or private water system.* Public or private water systems purchasing water from the county shall adopt and enforce this entire article as a condition of water service. Upon declaration of a water shortage emergency, the public or private water systems shall enforce the appropriate water use restrictions for the level of declared emergency.
8. *Termination of restrictions.* A water emergency declaration will expire when the director or his authorized representative determines that the condition that causes the emergency has abated. The expiration or cancellation of a water shortage emergency declaration shall be promptly and extensively publicized.

(Ord. of 9-3-02)

## Sec. 1-13-143. - Reclaimed water usage policy.

1. *Purpose.* The purpose of this policy is to set forth the principles and guidelines to encourage and permit the usage of reclaimed water for irrigation of golf courses, development common areas, commercial landscaped areas, public parks, agricultural lands, forestry lands, and residential lots.
2. *Background.* This reclaimed water usage policy is an integral part of an overall water conservation program to reduce the demand for potable water used for irrigation. The demand for potable water used for non-potable uses such as irrigation continues to increase. Due to limited availability of water resources, the county must use all water as a resource.
3. *Definitions.*

*Available* means that a reclaimed water distribution main is located within the right-of-way of the street or road adjacent to the property requesting installation of a meter for irrigation.

*Cross connection* means any physical connection that would allow reclaimed water back into the potable water system or potable water into the reclaimed water system.

*Department* shall mean the Brunswick County Public Utilities Department.

*Director* shall mean the director of the Brunswick County Public Utilities Department.

*Irrigation system* shall mean a device or combination of devices including pipes, emitters, sprinkler heads, and similar devices that transmit water from the county system to landscaped areas including lawns and shrubbery.

*NC DENR Rules* shall mean the regulations for reclaimed water and water reuse as stated in the North Carolina Administrative Code and as amended from time to time.

*Reclaimed water* means water that has been treated at a water reclamation facility to a level that meets or exceeds the water quality requirements defined by the NC DENR Rules.

*Reclaimed water distribution system* shall mean all equipment, piping, valves, pumps, and associated materials and equipment used to transmit reclaimed water from the wastewater treatment plant to the reclaimed water user.

*Reclaimed water transmission main* means those conduits used to supply reclaimed water from the wastewater treatment plants to potential reclaimed water users.

*Service line* shall mean that conduit from the reclaimed water distribution system to the property line.

1. *Connection.*
	1. After construction of a reclaimed water transmission main such that reclaimed water is available to the property, the property owner may connect to the reclaimed water system upon submission of plans and specifications for the proposed connection, receipts of all required permits, and approval of the connection by the director. Reclaimed water may be used only for irrigation or groundwater recharge purposes and shall be in accordance with NC DENR Rules and local ordinances rules and regulations. Any other use must be approved in advance by the director. The property owner shall be responsible for compliance with all applicable rules and regulations associated with the use of the reclaimed water on their property.
	2. Connection to the reclaimed water system by developments with existing irrigation systems is encouraged but not required. The county may require developments with more than five hundred (500) residential units planned for construction and approved for construction after the effective date of this to policy to utilize irrigation systems capable of using reclaimed water to irrigate required common areas.
2. *Rates, rules, and regulations.*
	1. The board of commissioners shall have the authority to establish rates for the connection and use of reclaimed water. All connection fees and usage charges shall be included in the public utilities schedule of fees and charges ordinances and may be amended as required.
	2. The board of commissioners shall have the authority to establish such rules and regulations concerning the connection to the reclaimed water distribution system and use of reclaimed water as required for the system to operate within the NC DENR Rules and local ordinances. The board of commissioners shall have the authority to establish priorities for the distribution of reclaimed water and establish priorities for the extension of reclaimed water transmission mains.
3. *Conditions for use of reclaimed water.*
	1. The county may terminate, discontinue, or suspend reclaimed water service in accordance with this policy and other county policies and ordinances in the event that the customer fails to pay their bill by the due date, tampers with the metering device, violates any NC DENR reclaimed water permits, has a cross connection with the potable water system, or conducts any other action or has any other condition that is detrimental to the potable water system or reclaimed water system.
	2. The property owners will be required to install a backflow prevention device on any potable water system that serves the property receiving reclaimed water. The property owner is responsible for the installation, maintenance, and testing of this backflow prevention device.
	3. County public utilities personnel shall have the right to enter the property to inspect the irrigation system for the purposes of determining compliance with this policy.
	4. The county reserves the right to interrupt or temporarily discontinue service to any portion or all of the reclaimed water system as deemed necessary by the director. In addition, the director shall have the authority to establish and regulate service pressures within the reclaimed water distribution system. Delivery pressures may vary widely and be insufficient to use for direct irrigation without improvements to the property owner's irrigation system.
	5. The county shall have the right to refuse service to any property owner and makes no guarantees of future service to any property owner.

(Ord. of 11-3-08)

**Editor's note—** An ordinance adopted November 3, 2008, did not specify manner of inclusion; hence, inclusion as section 1-13-143 is at the discretion of the editor.

Secs. 1-13-144—1-13-190. - Reserved.