

Water Shortage Response Plan

Town of Mooresville, North Carolina

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June 2009
Revised June 2018

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The purpose of this Water Shortage Response Plan (WSRP) is to outline existing procedures to be followed in the event of a water shortage due to short-term problems in water treatment or distribution as well as long-term issues such as drought. It specifies the voluntary and mandatory conservation measures to be implemented when specific stages of water shortage are identified. It also details methods by which the public is notified of the stages of water conservation, how existing ordinances are enforced, and variances that are permitted for certain users.

1. Implementation Authorization

The Town of Mooresville's (Town's) Town Manager has the responsibility of enacting this WSRP and has the authority to place the appropriate water conservation stages into effect upon notification of triggers by Catawba-Wateree Drought Management Advisory Group (CW-DMAG) or notification of a water supply shortage by the Public Utilities Director. This authority is granted by the Emergency Water Conservation Plan Ordinance (Ordinance) which is included in Appendix A. Secondary authority to enact this plan is held by the Public Utilities Director.

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2. Notification

The following notification methods will be used to inform water system employees and customers of a water shortage declaration:

- employee e-mail announcements
- Reverse 911 Notification System, Connect CTY
- notices at municipal buildings (eg Town Hall, Public Library, Recreation Centers, etc)
- notices in water bills
- press releases
- Town website and social media pages such as Facebook and Twitter

Required water shortage response measures will be communicated at a minimum through PSA announcements on local radio and cable stations, on the Town's website and through social media. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone through use of reverse 911.

3. Levels of Response

The Ordinance has five stages of levels of severity of water shortage which shall be enacted when water supplies have declined to levels that are deemed insufficient to protect the health and safety

of the community without substantially curtailing water demands. Appendix A contains the Emergency Water Conservation Plan Ordinance which specifies the activities permitted and prohibited during each stage of conservation, enforcement of each stage and variance request procedures.

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These measures shall be enacted by the Town Manager when the stages of restrictive water use limit non-essential uses of water as the severity of the water shortage increases. Stages of water conservation will follow the CW-DMAG recommendations for water supply issues caused by drought. The triggers for these events are defined in Appendix C of the Catawba-Wateree Comprehensive Relicensing Agreement: Low Inflow Protocol (LIP), attached to this document as Appendix B.

The Town has agreed voluntarily to abide by the LIP trigger points as defined by the CW-DMAG. A summary of these trigger points and the corresponding Town water conservation stage are listed below.

Low Inflow Protocol (LIP) Stage	Town of Mooresville Water Conservation Stage
0	Stage 1: Voluntary Water Conservation Notification
1	Stage II: Water Conservation Alert
2	Stage III: Water Shortage Warning
3	Stage IV: Water Shortage Crisis
4	Stage IV: Water Shortage Emergency

In addition to the CW-DMAG triggers, the Town may need to implement the water conservation plan due to treatment supply disruption or mechanical distribution issues. If treatment supply disruption should occur, the Town may utilize the following triggers to establish the proper water conservation stage. The Public Utilities Director shall evaluate the average daily water usage to determine if the restrictions are necessary.

Water Supply Available, percentage of full system capacity	Town of Mooresville Water Conservation Stage
90%-100%	No Restrictions Required
80%-89%	Stage 1: Voluntary Water Conservation Notification
70%-79%	Stage II: Water Conservation Alert
60%-69%	Stage III: Water Shortage Warning
50%-59%	Stage IV: Water Shortage Crisis
Less than 50%	Stage IV: Water Shortage Emergency

As capacity is restored and the CW-DMAG LIP reduces the conservation stage, the Town Manager may then reduce the severity of the conservation plan being implemented. The Public Utilities Director shall monitor the water supply and the CW-DMAG LIP daily during water conservation restrictions and report any change in status to the Town Manager.

4. Enforcement

The Ordinance prescribes the following enforcement measures and penalties for violation of the water use restrictions put in place during Stages II, III, IV or V. Residential customers shall be

fined \$100 per violation paid within 48 hours of its assessment. Non-residential customers shall be fined \$200 for the first violation, \$500 for the second violation and \$1,000 for the third and each successive violation. Any person, firm or corporation who makes a prohibited connection during Stages II, III, IV or V of a water emergency shall be charged with a Class 3 misdemeanor and fined no more than \$500.

The Public Utilities Director is authorized to discontinue water service in the event a violation of the provisions of the Ordinance under Stages II, III, IV or V and shall give at least 2 days' notice. Compliance with these provisions shall be enforced by personnel of the Utilities Department, the Police Department and other such personnel as designated by the Town Manager.

5. Public Comment

Participation by the community in all aspects of water conservation is critical to the successful implementation of this Plan. The original WSRP and Ordinance underwent a public review process prior to adoption. A draft of this 2018 revision will also be made available to the public for review and comment prior to adoption.

6. Variance Protocols

Hospitals, nursing homes and health care facilities are encouraged to comply with all stages of water conservation and implement measures to reduce water use to the greatest extent possible. These facilities are permitted to survey their water usage requirements and substitute conservation measures as may be reasonably possible without endangering the health of their patients or residents.

Under Stages II and III, persons regularly engaged in the sale of plants, shrubbery, trees and flowers are permitted to use water for irrigation of their commercial stock at any time and by any method they deem necessary.

Residents or other commercial customers may apply for a variance through the Town Manager. In order for a variance to be considered, the applicant must provide the following information for consideration:

- a. The requested water usage quantity
- b. Demonstrated necessary use of drinking water
- c. Expected duration of usage beyond the conservation limits
- d. Any alternative source options that have been evaluated
- e. Estimated cost for implementation of the alternative water source options
- f. Estimated impact from not having the requested water quantity

Issuance of variances will be at the sole discretion of the Town Manager.

7. Effectiveness

The future effectiveness of the WSMP will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation

citations, desired reductions attained, and evaluation of demand reductions compared to the previous year's seasonal data.

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IX. Revision

The Ordinance and this adopted WSMP will be reviewed on a regular basis to evaluate the effectiveness of the plan. The review shall occur at least every 5 years or after each implementation of Stage II: Water Conservation Alert or greater, whichever is sooner. In addition, the Town will continue to voluntarily comply with CW-DMAG Low Inflow Protocol, including future revisions.

Appendix A

Town of Mooresville Code of Ordinances

Chapter 24, Article III – Emergency Water Conservation Plan

ARTICLE III. - EMERGENCY WATER CONSERVATION PLAN

Sec. 24-70 - Declaration.

Whenever the water supply of the Town of Mooresville's public water system is low or declining due to conditions which may adversely affect the continued availability of water for human consumption, sanitation, health and fire protection, it may become necessary to declare a water shortage and implement conservation requirements under the standards set forth below.

(Ord. No. 2002-3-1, 4-7-2003)

Sec. 24-71 - Definitions.

For the purpose of this article, the following terms, words and phrases and their derivations shall have the meaning given herein:

Customer means a person in whose name a water connection is made and to whom a bill is issued, whether such connection is inside or outside the corporate limits of the town.

Notification shall have the meaning set forth in section 24-73 herein.

Person means any person, firm, partnership, association, corporation, limited liability company, professional association or organization of any kind.

Stage shall mean any one of the five (5) stages or levels of severity of water shortage as designated herein.

Town means the Town of Mooresville.

Water means raw or treated water from the town public water supply system.

Water shortage means whenever the water supply of the town's public water system is low or declining. Levels of water shortage shall be as defined in section 24-72.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-72. - [Water shortage.]

(a)

A water shortage shall be declared to exist when the water supply available to the town shall have declined to where the customers cannot be provided with water to protect their health and safety without substantially curtailing the water demand. The town has agreed to voluntarily abide by the Catawba-Wateree Drought Management Advisory Group, Low Inflow Protocol (LIP) as trigger points for plan implementation.

A summary of the LIP trigger points and the corresponding town water conservation stage are listed below.

Low Inflow Protocol (LIP) Stage	Town of Mooresville Water Conservation Stage
0	Stage I: Voluntary water conservation notification
1	Stage II: Water conservation alert
2	Stage III: Water shortage warning
3	Stage IV: Water shortage crisis
4	Stage V: Water shortage emergency

- (b) In addition to the CW-DMAG triggers, the town may need to implement the water conservation plan due to treatment supply disruption or mechanical distribution issues. If treatment supply disruption should occur, the town will utilize the following triggers to establish the water conservation stage required. These triggers will be used at the discretion of the public services director with consideration of daily usage patterns.

Water Supply Available, percentage of full system capacity	Town of Mooresville Water Conservation Stage
90—100%	No restrictions required
80—89%	Stage I: Voluntary water conservation notification
70—79%	Stage II: Water conservation alert
60—69%	Stage III: Water shortage warning
50—59%	Stage IV: Water shortage crisis
Less than 50%	Stage V: Water shortage emergency

(Ord. No. 2009-12-8, 12-7-2009)

Editor's note— Ord. No. 2009-12-8, adopted Dec. 7, 2009, repealed the former § 24-72 and enacted a new § 24-72 as set out herein. The former § 24-72 pertained to similar subject matter and derived from Ord. No. 2002-3-1, adopted April 7, 2003.

Sec. 24-73. - Notice to general public of water shortage.

- (a) Should a water shortage in the town's water supply occur as determined by the trigger points in section 24-72 which may put the health and safety of the customers at risk, the public services director, after careful evaluation, will notify

the town manager with appropriate written recommendations. The town is authorized and empowered to give notification to the public of the existence of the water shortage and the severity thereof as follows:

- (1) In order to protect the health and safety of the customers served by the town, the town manager shall place into effect the appropriate restrictive stage hereinafter authorized. Notice of such restrictive stage shall be given by the town manager through general publication of the appropriate water shortage notice, to be effective within twenty-four (24) hours following the issuance thereof.
- (2) In the event of a sudden severe water shortage by a disrupted waterline or some other malfunction of the town's water system, the public services director or his/her designee shall immediately advise the town manager, and the town manager may immediately, without notice, place into effect the appropriate restrictive stage hereinafter authorized.
- (b) Once a state of water shortage is declared, the public services director or his/her designee shall review the supply of water available to the town system at least once per day. Following such periodic review, the public services director shall notify the town manager of available water supply and recommend appropriate action.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-74. - Compliance required in the event of water shortage.

- (a) In the event the town manager issues the notice described in section 24-73(a), it shall thereafter be unlawful for any person to use or permit the use of water from the water system or from a water system served by the town for any of the hereinafter set forth prohibited purposes until such time as this article is amended or repealed, or until the town manager has declared such water usage restrictions are no longer in effect.
- (b) In exercising this authority, consideration shall be primarily given to the following criteria: The trigger points identified in section 24-72, water levels in the Catawba River, water levels in Lake Norman, capabilities of the water production and distribution system, draw-down rates, outlook for precipitation, daily water use patterns, seasonal and long-term weather patterns and availability of water from other sources.

- (c) Hospitals, nursing homes and health care facilities shall comply with all restrictions imposed on residential and non-residential customers by the town manager and which may be applicable to any person, except to the extent such compliance will reasonably endanger the health of the patients or residents of the said facilities.
- (d) Hospitals, nursing homes and health care facilities shall survey their water usage patterns and requirements and implement substitute conservation measures as may be reasonably possible without endangering the health of their patients or residents to achieve a reasonable reduction in the facilities' water usage.
- (e) If at any time water conservation restrictions are implemented by the Catawba-Wateree Drought Management Advisory Group (DMAG) that are more restrictive than those measures being implemented under this section, then such more restrictive measures so implemented by DMAG shall control.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2008-4-7, § 1, 4-7-2008; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-75. - Restrictions.

The severity of the water shortages shall be determined by following the criteria set out in sections 24-72 and 24-74. The restrictive measures in effect at each stage are as follows:

- (1) *Stage I voluntary water conservation notification.* In the event the town manager or his/her designee finds that a water emergency situation exists the manager is empowered to declare a stage I voluntary water conservation notification. After complying with the notice notification provisions contained in subsection 24-73(a), the following water restrictions and conservation measures shall be encouraged, recommended and requested:
 - a. Inspect and repair all faulty and defective parts of faucets and toilets causing water waste.
 - b. Use shower for bathing rather than bathtub and limit shower to no more than five (5) minutes.
 - c. Do not leave faucets running while shaving, rinsing dishes or brushing teeth.
 - d. Limit use of clothes washers and dishwashers, and when used, operate fully loaded.
 - e. Limit sprinkler irrigation of lawns to what is necessary for lawn survival.
 - f. Drip irrigation and handheld, spring-loaded hoses may be used any

time.

- g. Water shrubbery the minimum required, reusing household water when possible.
 - h. Limit vehicle washing.
 - i. Do not wash down outside areas such as sidewalks, patios, driveways, etc.
 - j. Install water flow restrictions in showerheads and other water-saving devices.
 - k. Use disposable and biodegradable dishes where possible.
 - l. Install water-saving devices in toilets.
 - m. Limit hours of operation of water-cooled air conditioners.
 - n. Limit refilling of swimming or wading pools.
 - o. Conservation in public buildings, institutions, dormitories and similar facilities is encouraged.
 - p. Water conservation should be followed during all phases of construction-related activities. Where available, water needed should be obtained from supplemental sources.
 - q. To do everything else that is reasonable to accomplish water conservation.
- (2) *Stage II water conservation alert.* In the event the town manager or his/her designee finds that a water emergency situation exists that cannot be controlled with implementation of stage I water shortage measures, the manager is empowered to declare that a water shortage emergency exists and may declare a stage II water conservation alert. After complying with the notification provisions contained in subsection 24-73(a), the town manager or his/her designee shall:
- a. Issue the following mandatory water restrictions, and thereafter, it shall be unlawful for a customer to:
 - 1. Fail to take all actions requested in stage I, which are incorporated herein by reference, along with the following more restrictive measures where applicable, with the measures set out in stage II to control in the event of a conflict.
 - 2.

Use an in-ground or above-ground sprinkling device or system other than those as expressly allowed herein to irrigate lawns, shrubbery, and trees and other outside water uses except between the hours of 7:00 a.m. to 11:00 a.m. or 6:00 p.m. to 10:00 p.m.

- b. The following are expressly allowed at any time during a stage II water conservation alert:
 1. The irrigation of commercial stock in trade by persons regularly engaged in the sale of plants, shrubbery, trees, and flowers.
 2. The use of drip irrigation, handheld spring-loaded hoses, or other handheld watering methods by any person, entity, or business.
- (3) *Stage III water shortage warning.* In the event the town manager or his/her designee finds that a water emergency situation exists that cannot be controlled with implementation of stage I and stage II water shortage measures, the manager is empowered to declare that a water shortage emergency exists and may declare a stage III water shortage warning. After complying with those notice provisions contained in subsection 24-73(a), the town manager or his/her designee shall:
 - a. Issue the following mandatory water restrictions, and thereafter, it shall then be unlawful for a customer to:
 1. Fail to take all actions requested in stage II, which are incorporated herein by reference, along with the following more restrictive measures where applicable with the measures set out in stage III to control in the event of a conflict.
 2. Sprinkler irrigate lawns, shrubbery, and trees and all other outside water uses except that a customer may sprinkler irrigate newly sown lawns daily only for the first thirty (30) days between the hours of 7:00 a.m. and 11:00 a.m. or 6:00 p.m. and 10:00 p.m.

In the event the town manager or his designee finds that special circumstances indicate the need to allow irrigation of newly sown lawns daily for longer than thirty (30) days, the manager or his designee is authorized to allow a reasonable time extension.

3.

Operate water-cooled air conditioners or other equipment that does not recycle cooling water, except when health and safety are adversely affected.

4. Wash automobiles, trucks, trailers, boats, airplanes or any other type of mobile equipment, except that parts of vehicles may be washed where required by federal, state or local laws or for safety reasons. Provided, however, that any commercial or business-operated car wash facility shall be permitted to use water for such purposes. Further, a person regularly engaged in the sale and/or renting of motor vehicles shall be permitted to use water for the cleaning of their commercial stock; however, any such person shall ensure that water is not wasted.
5. Wash down outside areas such as streets, driveways, service station aprons, parking lots, office buildings, exteriors of existing or newly constructed homes or apartments, sidewalks or patios, or to use water for similar purposes except for health and safety requirements of federal, state and local laws; provided, however, hand-washing of exterior surfaces of a building for the purpose of preparing them for painting shall be permitted. Provided further, licensed commercial pressure washers shall be permitted to operate. However, any such facility's owner/operator shall ensure that water is not wasted.
6. Operate or introduce water, except where such water is totally recycled, into any ornamental fountain, pool or pond or other structure making similar use of water.
7. Serve drinking water in restaurants, cafeterias or other food establishments, except upon specific request.
8. Use water from any public or private fire hydrants for any purpose other than fire suppression or other public emergency except that licensed contractors engaged in construction activities shall be permitted to operate essential dust control and compaction activities. Water use for normal maintenance of water and/or sewer lines is permitted.
9. Commercial, industrial and construction operations shall eliminate

all waste of water.

10. Use water for any unnecessary purpose or to waste water.
- b. The following are expressly allowed at any time during a stage III water conservation alert:
 1. The irrigation of commercial stock in trade by persons regularly engaged in the sale of plants, shrubbery, trees, and flowers.
 2. The use of drip irrigation, soaker hoses, hand-held spring loaded hoses, or other hand-held methods of watering to water on any day from 7:00 a.m. to 11:00 a.m. or 6:00 p.m. to 10:00 p.m. by any person, entity, or business.
- (4) *Stage IV water shortage crisis.* In the event the town manager or his/her designee finds that a water emergency situation exists that cannot be controlled with implementation of stage I, stage II, and stage III water shortage measures, the manager is empowered to declare a stage IV water shortage crisis. After complying with the notice provisions contained in subsection 24-73(a), the following mandatory water restrictions shall be imposed and therefore, it shall be unlawful for customers served by the town's water system to:
 - a. Fail to take all actions requested or required in stages I, II and III, which are incorporated herein by reference, along with the following more restrictive measures where applicable with the measures set out in stage IV to control in the event of a conflict.
 - b. Water lawns or do any other outside watering of plant materials, shrubbery, or trees, except by drip irrigation, spring-loaded handheld hoses or other handheld methods or a bucket according to the following schedules:
 1. All even-numbered street addresses shall water only on Friday from 7:00 a.m. to 9 a.m. and 6:00 p.m. to 8:00 p.m.
 2. All odd-numbered street addresses shall water only on Saturday, from 7:00 a.m. to 9 a.m. and 6:00 p.m. to 8:00 p.m.
 - c. Exceed the following water usage mandate for "nonresidential" customers:
 - 1.

Commercial, industrial ("nonresidential") customers and construction activities which utilize five thousand (5,000) or more gallons of water per day shall achieve mandatory reductions in daily water usage of twenty-five (25) percent, fifty (50) percent or seventy-five (75) percent, as ordered, through whatever means is available.

2. The public services director or his/her designee shall determine the target reduction percentage by the severity of the water emergency. The public services director or his/her designee will inform in writing the town manager, who shall ensure that such percentages will be publicly announced as a part of an emergency declaration, which shall be published by the town in addition to the notice provisions in subsection 24-73(a) herein. The public services director or his/her designee shall determine compliance with the daily usage reduction targets, based on average usage during the corresponding billing period of the most recent twelve-month period ending on June 30, in which no stage of this article, in all its forms, was in effect.
 3. If no meter readings are recorded or otherwise available for a customer's billing period, the finance/billing department of the town will establish an average of similar users for the customer.
 4. If the managed reduction in water usage cannot be obtained without threatening health or safety, or if there has been a significant change in the customer's circumstances, the customer may apply to the public services director or his/her designee for a variance to the mandate.
 5. Variances to this restriction may be granted by the town manager to public health facilities, included, but not limited to, hospitals and nursing homes.
- d. Fail to meet the mandated water use reduction by each nonresidential customer in whatever manner possible, including limitation of operating hours, or days, if necessary.
- e.

Fail to provide access to its property to town personnel by each nonresidential customer for the purposes of meter reading and monitoring of compliance with this article.

- f. Make any water service connections, whether inside or outside the town limits, except as herein provided.
- (5) *Stage V water shortage emergency.* In the event the town manager or his/her designee finds that a water emergency situation exists that cannot be controlled with implementation of stage I, stage II, stage III, and stage IV water shortage measures, the manager is empowered to declare a stage V water shortage emergency. After complying with the notice provisions contained in subsection 24-73(a), the following mandatory water restrictions shall be imposed:
- a. All use of water for purposes other than maintenance of public health and safety is prohibited.
 - b. Usage by individuals shall be limited to those amounts necessary to sustain life through drinking, food preparation and personal hygiene.
 - c. Where the town system is not functional, National Guard, emergency service vehicles and private water sources may be utilized to distribute water for household use at prearranged locations within the affected area(s).

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2007-11-5, § 1, 11-5-2007; Ord. No. 2008-4-7, §§ 2—4, 4-7-2008; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-76. - Excessive-use water rates.

Any customer who exceeds the allotment established pursuant to this article will be subject to the following "excessive-use water rates:"

- (1) "Excessive-use water rates" will be collected, based on the amount by which a customer's use exceeds the water allotment established pursuant to the local water rationing declaration, computed on the basis that all water used in excess of the allotment shall be billed at five (5) times the normal rate.
- (2)

Any monies collected through "excessive-use water rates" shall be placed in a reserve account that is dedicated to addressing water shortage problems and water conservation initiatives.

- (3) Failure of the customer to remit the periodic amount billed by the due date may result in termination or reduction of water service to the customer pursuant to the town's water and sewer ordinances.

(Ord. No. 2002-3-1, 4-7-2003)

Sec. 24-77. - Compliance plans for nonresidential customers.

Nonresidential customers utilizing five thousand (5,000) or more gallons of water per day shall prepare plans detailing measures to be taken by said customers to achieve twenty-five (25) percent, fifty (50) percent and seventy-five (75) percent reductions in their daily water usage during stage III water shortage crisis situations. Such plans shall be submitted to the public services director for review and approval within ninety (90) days from the adoption of this article or within ninety (90) days of demand of the public services director or his/her designee. Plans shall be updated at least every five (5) years and must be revised as may be reasonably directed by the public services director or his/her designee.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-78. - Compliance with article.

- (a) Compliance with the provisions of this chapter shall be enforced by personnel of the utilities division, the Mooresville Police Department and other such personnel as designated by the town manager. Failure to comply with any of the regulations of this chapter shall be unlawful and a violation of the article, and all remedies authorized by law for noncompliance with this article, including the issuance of a civil citation as hereinafter set forth or action for injunctive relief, may be exercised to enforce its provisions. It shall be unlawful to fail to act in accordance herewith to use water in any illegal manner or attempt to evade or avoid such water restrictions.
- (b) Residents or commercial customers may apply for a variance through the town manager. In order for a variance to be considered, the applicant must provide the following information for consideration:

- (1) The requested water usage quantity;
- (2) Must demonstrate a necessary use of drinking water;
- (3) Expected duration of usage beyond the conservation limits;
- (4) Any alternative source options that have been evaluated;
- (5) Estimated cost for implementation of the alternative water source options;
- (6) Estimated impact from not having the requested water quantity.

Issuance of variances will be at the sole discretion of the town manager. Variances granted shall be posted in a prominent location.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-79. - Signage.

The customer who has a town water service connection, but wishes to use water from a well or other non-town supply during a stage II water shortage warning or stage III water shortage crisis shall post a sign in a conspicuous place identifying the water use source as a non-town supply. The town will supply these signs at no cost to the customer. The owner of any such well may be requested by town personnel to demonstrate that the source of such water is not in any way connected to, and does not use, water originating from the town's public water system. During a stage IV water shortage emergency, the well shall be available to the town.

(Ord. No. 2002-3-1, 4-7-2003)

Sec. 24-80. - Enforcement and penalties.

- (a) *Residential customers.* Any residential customer who shall violate any provision of this chapter shall be subject to civil penalties and for a violation of stage II, III, IV, and V mandatory water use restrictions shall be as follows: A fine in the amount of one hundred dollars (\$100.00) per violation, which shall be paid within forty-eight (48) hours of its assessment, or the town may terminate the water supply to the customer.
- (b) *Non-residential customers.* Any non-residential customer who violates any provision of this chapter shall be subject to a civil penalty as follows: A fine in the amount of two hundred dollars (\$200.00) for the first violation; a fine in the amount of five hundred dollars (\$500.00) for the second violation; and a fine in the amount of one thousand dollars (\$1,000.00) for the third and each successive

violation. Each violation of this article shall be considered a separate violation. Each violation for the various stages hereunder shall be considered a separate violation.

- (c) *Cumulation of violations.* For a period of twelve (12) successive months, violations shall be accumulated by all customers so long as any of the stages set forth herein are in effect. Violations of stages II, III and IV shall accumulate with violations of these stages. Should a customer cease and renew service during the stages described herein, the customer's violation shall continue to accumulate as if such cessation had not occurred.
- (d) *Criminal penalty.* In addition to the civil penalties provided for in this article, any person, firm or corporation who shall make such prohibited connection during such time shall be guilty of a misdemeanor and, upon conviction, shall be punished for a class 3 misdemeanor and shall be fined not more than five hundred dollars (\$500.00) as provided in G.S. 14-4.4.

(Ord. No. 2002-3-1, 4-7-2003)

Sec. 24-81. - Discontinuance of service.

- (a) The public services director or his/her designee is herewith authorized to discontinue, or restrict, water service to a person in the event of a violation of the provisions of this chapter during a stage II, stage III, stage IV, or stage V water shortage. All applicable penalty fees (i.e., reconnect fees and fines) may be applied in the event of service suspensions.
- (b) The public services director or his/her designee shall give at least two (2) working days' notice of intent to terminate or restrict.
- (c) No notice shall be required to discontinue, or turn off, outside water service, which is provided solely for lawn and shrubbery sprinkler systems, swimming pools or other nonessential uses.
- (d) When a water service has been discontinued, or turned off, while any stage of a water shortage is in effect, it shall be unlawful to reactivate such service without the permission of the public services director or his/her designee.
- (e) In the event of continued noncompliance with this article, the meter will be removed and service will be discontinued. Tap fees and deposits may be forfeited.

(Ord. No. 2002-3-1, 4-7-2003; Ord. No. 2009-12-8, 12-7-2009)

Sec. 24-82. - Municipal customer, water corporations or company compliance.

Municipalities, water corporations or companies purchasing water from the town shall agree in writing to enforce sections 24-70 through 24-81 herein, within ninety (90) days of the adoption of this article, as a condition of continuing existing water sales agreements. Upon declaration of a water emergency, said municipalities and companies shall enforce the appropriate water use restrictions for the stage of declared emergency.

(Ord. No. 2002-3-1, 4-7-2003)

Sec. 24-83. - Plan review and evaluation.

- (a) The plan will be reviewed by the town manager at least once every five (5) years or after the implementation of stage II or greater restrictions, whichever comes first. Any changes deemed necessary will be proposed to the board for implementation. Changes will be available for public review and comment a minimum of thirty (30) days prior to vote for implementation.
- (b) During the plan review period the public services director will evaluate the effectiveness of the plan by comparing water utilization rates during a one-month conservation period with the same one-month period from the previous two (2) years. Utilization during the conservation period will also be compared to the previous month.
- (c) During the plan review period the public services director will also review the frequency of citations given out during the most recent conservation period and provide recommendations regarding enforcement and penalties.

(Ord. No. 2009-12-8, 12-7-2009)

Secs. 24-84—24-89. - Reserved.

Appendix B

Catawba-Wateree Comprehensive Relicensing Agreement

Appendix C: Low Inflow Protocol (LIP) for the Catawba- Wateree Project

APPENDIX C: LOW INFLOW PROTOCOL (LIP) FOR THE CATAWBA-WATEREE PROJECT

PURPOSE

The purpose of this Low Inflow Protocol (LIP) is to establish procedures for reductions in water use during periods of low inflow to the Catawba-Wateree Project (the Project). The LIP was developed on the basis that all parties with interests in water quantity will share the responsibility to establish priorities and to conserve the limited water supply.

OVERVIEW

This Low Inflow Protocol provides trigger points and procedures for how the Catawba-Wateree Project will be operated by the Licensee, as well as water withdrawal reduction measures and goals for other water users during periods of low inflow (i.e., periods when there is not enough water flowing into the Project reservoirs to meet the normal water demands while maintaining Remaining Usable Storage in the reservoir system at or above a seasonal target level).

The Licensee will provide flow from hydro generation and other means to support electric customer needs and the instream flow needs of the Project. During periods of normal inflow, reservoir levels will be maintained within prescribed Normal Operating Ranges. During times that inflow is not adequate to meet all of the normal demands for water and maintain reservoir levels as normally targeted the Licensee will progressively reduce hydro generation. If hydrologic conditions worsen until trigger points outlined herein are reached, the Licensee will declare a Stage 0 - Low Inflow Watch and begin meeting with the applicable agencies and water users to discuss this LIP. If hydrologic conditions continue to worsen, the Licensee will declare various stages of a Low Inflow Condition (LIC) as defined in the Procedure section of this document. Each progressive stage of the LIC will call for greater reductions in hydro station releases and water withdrawals, and allow additional use of the available water storage inventory.

The goal of this staged LIP is to take the actions needed in the Catawba-Wateree River Basin to delay the point at which the Project's usable water storage inventory is fully depleted. While there are no human actions that can guarantee that the Catawba-Wateree River Basin will never experience operability limitations at water intake structures due to low reservoir levels or low streamflows, this LIP is intended to provide additional time to allow precipitation to restore streamflow, reservoir levels, and groundwater levels to normal ranges. The amount of additional time that is gained during the LIP depends primarily on the diagnostic accuracy of the trigger points, the amount of regulatory flexibility the Licensee has to operate the Project, and the effectiveness of the Licensee and other water users in working together to implement their required actions and achieve significant water use reductions in a timely manner.

To ensure continuous improvement regarding the LIP and its implementation throughout the term of the New License, the LIP will be re-evaluated and modified periodically. These re-evaluations and modifications will be as determined by the Catawba-Wateree Drought Management Advisory Group (CW-DMAG).

KEY FACTS AND DEFINITIONS

1. Human Health and Safety and the Integrity of the Public Water Supply and Electric Systems are of Utmost Importance – Nothing in this protocol will limit the Licensee's ability to take any and all lawful actions necessary at the Project to protect human health and safety, protect its equipment from major damage, protect the equipment of the Large Water Intake Owners from major damage, and ensure the stability of the regional electric grid and public water supply systems. It is recognized that the Licensee may take the steps that are necessary to protect these things without prior consultation or notification. Likewise, nothing in this LIP will limit the States of North Carolina and South Carolina from taking any and all lawful actions necessary within their jurisdictions to protect human health and safety. It is recognized that North Carolina and South Carolina may also take the steps necessary to protect these things without prior consultation or notification.
2. No Abrogation of Statutory Authority – It is understood that the South Carolina Department of Natural Resources (SCDNR) must operate under the statutory authority of its drought response statutes, and nothing in this LIP will require the SCDNR to take any action that exceeds its authority under their drought response statute.
3. Normal Full Pond Elevation – Also referred to simply as "full pond," this is the level of a reservoir that corresponds to the point at which water would first begin to spill from the reservoir's dam(s) if the Licensee took no action. This level corresponds to the lowest point along the top of the spillway (including flashboards) for reservoirs without floodgates and to the lowest point along the top of the floodgates for reservoirs that have floodgates. To avoid confusion among the many reservoirs the Licensee operates, it has adopted the practice of referring to the Full Pond Elevation for all of its reservoirs as equal to 100.0 ft. relative. The Full Pond Elevations for the Catawba-Wateree Project reservoirs are as follows:

Reservoir	Full Pond Elevation (ft. above Mean Sea Level)
Lake James	1200.0
Lake Rhodhiss	995.1
Lake Hickory	935.0
Lookout Shoals Lake	838.1
Lake Norman	760.0
Mountain Island Lake	647.5
Lake Wylie	569.4
Fishing Creek Reservoir	417.2
Great Falls Reservoir	355.8
Cedar Creek Reservoir	284.4
Lake Wateree	225.5

4. Net Inflow – The cumulative inflow into a reservoir, expressed in acre-feet (ac-ft) per month. Net inflow is the sum of tributary stream flow, inflow from upstream hydro development releases (where applicable), groundwater inflow, precipitation falling on the reservoir surface, land surface runoff, and on-reservoir point-source return flows, less the sum of on-reservoir water withdrawals, groundwater recharge, hydro development flow releases, evaporation, and other factors.
5. Normal Minimum Elevation – The level of a reservoir (measured in feet above Mean Sea Level (MSL) or feet relative to the full pond contour with 100.0 ft. corresponding to full pond) that defines the bottom of the reservoir's Normal Operating Range for a given day of the year. If inflows and outflows to the reservoir are kept within some reasonable range of the average or expected amounts, hydroelectric project equipment is operating properly and no protocols for abnormal conditions have been implemented, reservoir level excursions below the Normal Minimum Elevation should not occur.
6. Normal Maximum Elevation – The level of a reservoir (measured in feet above Mean Sea Level (MSL) or feet relative to the full pond contour with 100.0 ft. corresponding to full pond) that defines the top of the reservoir's Normal Operating Range for a given day of the year. If inflows and outflows to the reservoir are kept within some reasonable range of the average or expected amounts, hydroelectric project equipment is operating properly, and no protocols for abnormal conditions have been implemented, reservoir level excursions above the Normal Maximum Elevation should not occur.
7. Normal Target Elevation – The level of a reservoir (measured in feet above Mean Sea Level (msl) or feet relative to the full pond contour with 100.0 ft corresponding to full pond) that the Licensee will endeavor in good faith to achieve, unless operating in this Low Inflow Protocol, the Maintenance and Emergency Protocol, the Spring Reservoir Level Stabilization Program (Lakes James, Norman, Wylie and Wateree only), a Spring Stable Flow Period (Lake Wateree only) or a Floodplain Inundation Period (Lake Wateree only). Since inflows vary significantly and outflow demands also vary, the Licensee will not always be able to maintain actual reservoir level at the Normal Target Elevation. The Normal Target Elevation falls within the Normal Operating Range, but it is not always the average of the Normal Minimum and Normal Maximum Elevations.
8. Normal Operating Range for Reservoir Levels – The band of reservoir levels within which the Licensee normally attempts to maintain a given reservoir that it operates on a given day. Each reservoir has its own specific Normal Operating Range, and that range is bounded by a Normal Maximum Elevation and a Normal Minimum Elevation. If inflows and outflows to the reservoir are kept within some reasonable range of the average or expected amounts, hydro project equipment is operating properly and no protocols for abnormal conditions have been implemented, reservoir level excursions outside of the Normal Operating Range should not occur.
9. Large Water Intake – Any water intake (e.g., public water supply, industrial, agricultural, power plant, etc.) having a maximum instantaneous capacity greater than or equal to one Million Gallons per Day (MGD) that withdraws water from the Catawba-Wateree River Basin.
10. Public Water Supply (PWS) – Any water delivery system owned and/or operated by any governmental or private entity that utilizes waters from the Catawba-Wateree

River Basin for the public interest including drinking water; residential, commercial, industrial, and institutional uses; irrigation, and/or other public uses.

11. Critical Reservoir Elevation – Unless it is otherwise stated as applying only to a specific intake or type of intake, the Critical Reservoir Elevation is the highest level of water in a reservoir (measured in feet above Mean Sea Level (mfs) or feet relative to the full pond contour with 100.0 ft. corresponding to full pond) below which any Large Water Intake used for Public Water Supply or industrial uses, or any regional power plant intake located on the reservoir will not operate at its Licensee-approved capacity. The Critical Reservoir Elevations, as of June 1, 2006, are defined below:

Reservoir	Critical Reservoir Elevation (ft. relative to local datum) (100 ft = Full Pond)	Type of Limit
Lake James	61.0	Power Production
Lake Rhodhiss	89.4	Municipal Intake
Lake Hickory	94.0	Municipal Intake
Lookout Shoals Lake	74.9	Municipal Intake
Lake Norman	90.0	Power Production
Mountain Island Lake	94.3	Power Production
Lake Wylie	92.6	Industrial Intake
Fishing Creek Reservoir	95.0	Municipal Intake
Great Falls Reservoir	87.2	Power Production
Cedar Creek Reservoir	80.3	Power Production
Lake Wateree	92.5	Municipal Intake

12. Total Usable Storage (TUS) – The sum of the Project's volume of water expressed in acre-feet (ac-ft) contained between each reservoir's Critical Reservoir Elevation and the Full Pond Elevation.
13. Remaining Usable Storage (RUS) – The sum of the Project's volume of water expressed in acre-feet (ac-ft) contained between each reservoir's Critical Reservoir Elevation and the actual reservoir elevation at any given point in time.
14. Storage Index (SI) – The ratio, expressed in percent, of Remaining Usable Storage to Total Usable Storage at any given point in time.
15. Target Storage Index (TSI) – The ratio of Remaining Usable Storage to Total Usable Storage based on the Project reservoirs being at their Normal Target Elevations. The following table lists the Target Storage Index for the first day of each month:

Month	Target Storage Index For 1 st Day of Month (%)*
Jan	61
Feb	51
Mar	61
Apr	66

Month	Target Storage Index For 1 st Day of Month (%)*
May	75
Jun	75
Jul	75
Aug	75
Sep	75
Oct	75
Nov	69
Dec	62

* Target Storage Indices for other days of the month are determined by linear interpolation.

16. U.S. Drought Monitor – A synthesis of multiple indices, outlooks, and news accounts that represents a consensus of federal and academic scientists concerning the drought status of all parts of the United States. Typically, the U.S. Drought Monitor indicates intensity of drought as D0-Abnormally Dry, D1-Moderate, D2-Severe, D3-Extreme, and D4-Exceptional. The website address is <http://www.drought.unl.edu/dm/monitor.html>. The following federal agencies are responsible for maintaining the U.S. Drought Monitor:

- Joint Agricultural Weather Facility (U.S. Department of Agriculture and Department of Commerce/National Oceanic and Atmospheric Administration)
- Climate Prediction Center (U.S. Department of Commerce/NOAA/National Weather Service)
- National Climatic Data Center (DOC/NOAA)

17. U.S. Drought Monitor Three-Month Numeric Average – If the U.S. Drought Monitor has a reading of D0-D4 as of the last day of the previous month for any part of the Catawba-Wateree River Basin that drains to Lake Wateree, the Basin will be assigned a numeric value for the current month. The numeric value will equal the highest Drought Monitor designation (e.g., D0 = 0, D4 = 4) as of the last day of the previous month that existed for any part of the Catawba-Wateree River Basin that drains to Lake Wateree. A normal condition in the Basin, defined as the absence of a Drought Monitor designation, would be assigned a numeric value of negative one (-1). A running average numeric value of the current month and the previous two months will be monitored and designated as the U.S. Drought Monitor Three-Month Numeric Average.

18. Critical Flows – The minimum flow releases from the hydro developments that may be necessary to:
- a. prevent long-term or irreversible damage to aquatic communities consistent with the resource management goals and objectives for the affected stream reaches;
 - b. provide some basic level of operability for Large Water Intakes located on the affected stream reaches; and,

- c. provide some basic level of water quality maintenance in the affected stream reaches.

For the purposes of this LIP, the Critical Flows are as follows:

- a. Linville River, below the Bridgewater Development: 75 cubic feet per second (cfs).
 - b. Catawba River Bypassed Reach below the Bridgewater Development: 25 cfs.
 - c. Oxford Regulated River Reach below the Oxford Development: 100 cfs.
 - d. Lookout Shoals Regulated River Reach below the Lookout Shoals Development: 80 cfs.
 - e. Wylie Regulated River Reach below the Wylie Development: 700 cfs.
 - f. Great Falls Bypassed Reaches (Long and Short) at the Great Falls-Dearborn Development: 450 cfs and 80 cfs respectively.
 - g. Wateree Regulated River Reach below the Wateree Development: 800 cfs.
 - h. Leakage flows at the remaining Project structures. Leakage flows are defined as the flow of water through wicket gates when the hydro units are not operating and seepage through the Project structures at each development.
19. Recreation Flow Reductions – Since all recreation flow releases must be made by either releasing water through hydroelectric generation or through flow releases that bypass hydro generation equipment, reductions in Project Flow Requirements will impact recreation flow releases.
20. Organizational Abbreviations – Organizational abbreviations include the North Carolina Department of Environment and Natural Resources (NCDENR), North Carolina Wildlife Resources Commission (NCWRC), South Carolina Department of Natural Resources (SCDNR), South Carolina Department of Health and Environmental Control (SCDHEC), and the United States Geological Survey (USGS).
21. Catawba-Wateree Drought Management Advisory Group (CW-DMAG) – The CW-DMAG will be tasked with working with the Licensee when the LIP is initiated. This team will also meet as necessary to foster a basin-wide response to a Low Inflow Condition (see Procedure section of this LIP). Members of the CW-DMAG agree to comply with the conditions of this LIP. Membership on the CW-DMAG is open to the following organizations, of which each organization may have up to two members:
- a. NCDENR (including Division of Water Resources and the Division of Water Quality)
 - b. NCWRC
 - c. SCDNR
 - d. SCDHEC
 - e. USGS
 - f. Each Owner of a Large Water Intake located on one of the Catawba-Wateree Project reservoirs or the main stem of the Catawba-Wateree River
 - g. Each Owner of a Large Water Intake located on any tributary stream within the Catawba-Wateree River Basin that ultimately drains to Lake Wateree
 - h. Licensee (CW-DMAG Coordinator)

The CW-DMAG will meet at least annually (typically during the month of May) beginning in 2007 and continuing throughout the term of the New License, regardless of the Low Inflow Condition status, to review prior year activities, discuss data input from Large Water Intake Owners, and discuss other issues relevant to the LIP. The Licensee will maintain an active roster of the CW-DMAG and update the roster as needed. The Licensee will prepare meeting summaries of all CW-DMAG meetings and will make these meeting summaries available to the public by posting on its Web site.

22. Revising the LIP – During the term of the New License, the CW-DMAG will review and update the LIP periodically to ensure continuous improvement of the LIP and its implementation. These evaluations and modifications will be considered at least once every five (5) years during the New License term. Modifications must be approved by a consensus of the participating CW-DMAG members. If the participating members cannot reach consensus, then the dispute resolution procedures set forth in Section 31.0 of the relicensing Final Agreement will apply. Approved modifications will be incorporated through revision of the LIP and the Licensee will file the revised LIP with the FERC. If any modifications of the LIP require amendment of the New License, the Licensee will: (i) provide notice to all Parties to the relicensing Final Agreement advising them of the proposed license article amendment and the Licensee's intent to file it with the FERC; (ii) submit the modification request to the North Carolina Division of Water Quality (NCDWQ) and/or the South Carolina Department of Health and Environmental Control (SCDHEC) for formal review and approval as may be required by any reopener conditions of the respective state's 401 Water Quality Certification for the Project; and (iii) file a license amendment request for FERC approval. During this process, the CW-DMAG may appoint an ad hoc committee to address issues and revisions relevant to the LIP. The filing of a revised LIP by the Licensee will not constitute or require modification to the relicensing Final Agreement and any Party to the relicensing Final Agreement may be involved in the FERC's public process for assessing the revised LIP. Issues such as sediment fill impact on reservoir storage volume calculations, revising the groundwater monitoring plan and substitution of a regional drought monitor for the U.S. Drought Monitor, if developed in the future, are examples of items that may be addressed.
23. Water Withdrawal Data Collection and Reporting – The Licensee will maintain information on cumulative water use from Project reservoirs beginning in 2006 and continuing throughout the term of the New License and will make the information available to water intake owners and governmental agencies upon their request. The Licensee will require all owners of Large Water Intakes located within the FERC Project Boundaries to report to the Licensee, on an annual basis in MGD, their average monthly water withdrawals from and flow returns to the Project or its tributary streams that drain to Lake Wateree. The Licensee will maintain a database of this information including the Licensee's own non-hydro water use records (i.e., water uses due to thermal power generation). These annual withdrawal summaries will be in writing, certified for accuracy by a professional engineer or other appropriate official, and will be provided to the Licensee by January 31 of each year for the preceding calendar year beginning in 2007. This information may be used to determine if future increased water withdrawals would be within the projections of the Water Supply Study conducted during the relicensing process and filed with the FERC as part of the Licensee's Application for New License for the Project.

24. Reclaimed Water – Wastewater that has been treated to reclaimed water standards and is re-used for a designated purpose (e.g. industrial process, irrigation). Reclaimed Water will not be subject to the water use restrictions outlined in this LIP.
25. Drought Response Plan Updates – All Large Water Intake Owners will review and update their Drought Response Plans or Ordinances (or develop a plan or ordinance if they do not have one) by June 30, 2007 and within 180 days following the acceptance by the FERC of any future LIP revisions during the term of the New License to ensure compliance and coordination with the LIP, including the authority to enforce the provisions outlined herein, provided that the requirements of the LIP are consistent with state law.
26. Relationship Between the LIP and the Maintenance & Emergency Protocol (MEP) – The MEP outlines the response the Licensee will take under certain emergency and equipment failure and maintenance situations to continue practical and safe operation of the Project, to mitigate any related impacts to license conditions, and to communicate with resource agencies and the affected parties. Under the MEP, temporary modifications of prescribed flow releases and the reservoir level Normal Operating Ranges are allowed. Lowering levels of Project reservoirs caused by situations addressed under the MEP will not invoke implementation of this Low Inflow Protocol (LIP). Also, if the LIP has already been implemented at the time that a situation covered by the MEP is initiated, the Licensee will typically suspend implementation of the LIP until the MEP situation has been eliminated. The Licensee may, however, choose to continue with the LIP if desirable.
27. Consensus – Consensus is reached when all CW-DMAG members in attendance can 'live with' the outcome or proposal being made. The concept of consensus is more fully described in the Catawba-Wateree Hydroelectric Project Relicensing Stakeholder Teams Charter (dated October, 2005).
28. Monitored USGS Streamflow Gages – The Monitored USGS Streamflow Gages are identified as USGS streamflow gage #'s 02145000 (South Fork Catawba River at Lowell, NC), 02137727 (Catawba River near Pleasant Gardens, NC), 02140991 (Johns River at Arney's Store, NC), and 02147500 (Rocky Creek at Great Falls, SC).

ASSUMPTIONS

1. Instream Flows for Recreation – The New License for the Catawba-Wateree Project includes recreational flow releases as listed in the proposed Recreational Flows License Article.
2. Minimum Flows – The New License for the Catawba-Wateree Project includes the minimum flow requirements as listed in the proposed Minimum Flows License Article, the proposed Wylie High Inflow Protocol License Article, and the proposed Flows Supporting Public Water Supply and Industrial Processes License Article.
3. Project Flow Requirements – These flow requirements include the Minimum Flows and the portion of the Recreational Flows that is greater than the Minimum Flows for normal conditions (i.e., conditions outside of this LIP or Maintenance and Emergency Protocol).
4. Public Information System – The New License for the Catawba-Wateree Project includes the requirement to provide information to the public as specified in the proposed Public Information License Article.

5. Normal Operating Ranges for Reservoir Levels – The New License for the Catawba-Wateree Project includes the Normal Operating Ranges for reservoir levels (i.e., Normal Minimum, Normal Maximum, and Normal Target Elevations) as listed in the proposed Reservoir Elevations License Article.
6. Spring Reservoir Level Stabilization Program – The New License for the Catawba-Wateree Project includes the reservoir level requirements in the proposed Spring Reservoir Level Stabilization Program License Article.

PROCEDURE

During periods of normal inflow, reservoir levels will be maintained within prescribed Normal Operating Ranges. During times that inflow is not adequate to meet all of the normal demands for water and maintain reservoir levels as normally targeted, the Licensee will progressively reduce hydro generation while meeting Project Flow Requirements. During a Low Inflow Watch or a Low Inflow Condition (LIC) (as defined below), the Licensee and other water users will follow the protocol set forth below for the Catawba-Wateree Project regarding communications and adjustments to hydro station flow releases, bypassed flow releases, minimum reservoir elevations, and other water demands. The adjustments set forth below will be made on a monthly basis and are designed to equitably allocate the impacts of reduced water availability in accordance with the purpose statement of this LIP.

Trigger points that demonstrate worsening hydrologic conditions will define various stages of the Low Inflow Condition. A summary of trigger points for various stages is provided in the table below. The specific triggers required to enter successive stages are defined in the procedure for each stage.

Summary of LIP Trigger Points

Stage	Storage Index ¹		Drought Monitor ² (3-month average)		Monitored USGS ³ Streamflow Gages
0 ⁴	90% < SI < 100% TSI		3mo Ave DM ≥ 0		AVG ≤ 85% LT 6mo Ave
1	75% TSI < SI ≤ 90% TSI	and	3mo Ave DM ≥ 1	or	AVG ≤ 78% LT 6mo Ave
2	57% TSI < SI ≤ 75% TSI	and	3mo Ave DM ≥ 2	or	AVG ≤ 65% LT 6mo Ave
3	42% TSI < SI ≤ 57% TSI	and	3mo Ave DM ≥ 3	or	AVG ≤ 55% LT 6mo Ave
4	SI ≤ 42% TSI	and	3mo Ave DM = 4	or	AVG ≤ 40% LT 6mo Ave

¹ The ratio of Remaining Useable Storage to Total Usable Storage at a given point in time.

² The three-month numeric average of the published U.S. Drought Monitor.

³ The sum of the rolling sixth-month average for the Monitored USGS Streamflow Gages as a percentage of the period of record rolling average for the same six-month period for the Monitored USGS Streamflow Gages.

⁴ Stage 0 is triggered when any two of the three trigger points are reached.

Stage 0 Actions

The Licensee will monitor the Storage Index, the U.S. Drought Monitor, and the Monitored USGS Streamflow Gages on at least a monthly basis and will declare a Stage 0 Low Inflow Watch if any two of the following conditions occur:

- a. On the first day of the month, Storage Index is below the Target Storage Index, but greater than 90% of the Target Storage Index, while providing the Project Flow Requirements for the previous month.
- b. The U.S. Drought Monitor Three-Month Numeric Average has a value greater than or equal to 0.
- c. The sum of the actual rolling six-month average streamflows at the Monitored USGS Streamflow Gages is equal to or less than 85% of the sum of the period of record rolling average streamflows for the same six-month period.

When a Low Inflow Watch has been declared:

- a. The Licensee will activate the CW-DMAG, including the initiation of monthly meetings or conference calls to occur on the second Tuesday of each month. These monthly discussions will focus on:
 - Proper communication channels between the CW-DMAG members.
 - Information reporting consistency for CW-DMAG members, including a storage index history and forecast (at least a 90-day look back and look ahead) from the Licensee, a water use history and forecast (at least a 90-day look back and look ahead) from each water user on the CW-DMAG, streamflow gage and groundwater monitoring status from the state agencies and USGS, and state-wide drought response status from the state agencies.
 - Refresher training on this LIP.
 - Overview discussions from each CW-DMAG member concerning their role and plans for responding if a Stage 1 or higher Low Inflow Condition is subsequently declared.
- b. The Licensee will reduce the prescribed recreation flow releases at the Wylie Development from 6,000 cfs to 3,000 cfs.

Stage 1 Actions

1. The Licensee will declare a Stage 1 Low Inflow Condition (LIC) and notify the CW-DMAG if:

- a. On the first day of the month, the Storage Index is at or below 90% of the Target Storage Index, but greater than 75% of the Target Storage Index, while providing the Project Flow Requirements for the previous month.

and either of the following conditions exists:

- b. The U.S. Drought Monitor Three-Month Numeric Average has a value greater than or equal to 1.
- c. The sum of the actual rolling six-month average streamflows at the Monitored USGS Streamflow Gages is equal to or less than 78% of the sum of the period of record rolling average streamflows for the same six-month period.

2. The Licensee will complete the following activities within 5 days after the Stage 1 LIC declaration:
 - a. Reduce the Project Flow Requirements by 60% of the difference between the normal Project Flow Requirements and the Critical Flows. These reduced Project Flow Requirements are referred to as Stage 1 Minimum Project Flows.
 - b. Reduce the Normal Minimum Elevations by two feet at Lake James and Lake Norman and by one foot at each of the other Project reservoirs, but not to levels at any reservoir below the applicable Critical Reservoir Elevation. These elevations are referred to as the Stage 1 Minimum Elevations.
 - c. Update its Web site and Interactive Voice Response (IVR) messages to account for the impacts of the LIP on reservoir levels, usability of the Licensee's public access areas, and recreation flow schedules.
 - d. Notify the Federal Energy Regulatory Commission (FERC), the United States Fish and Wildlife Service (USFWS), the United States Bureau of Indian Affairs (USBIA), National Marine Fisheries Service (NMFS), and the Catawba Indian Nation of the Stage 1 LIC declaration.
 - e. Provide bi-weekly (once every two weeks) information updates to owners of Large Water Intakes about reservoir levels, meteorological forecasts, and inflow of water into the system.
 - f. In addition the Licensee may, at its sole discretion, modify or suspend its use of selected operating procedures that are designed for periods of normal or above normal inflow to optimize the water storage capabilities of the Project, including the Normal Maximum Elevations and Normal Target Elevations for reservoir levels; the Spring Reservoir Level Stabilization Program; the Wylie High Inflow Protocol and at Lake Wateree, the Spring Stable Flow Periods and Floodplain Inundation Periods. These modifications and suspensions may be used at the Licensee's sole discretion in any Low Inflow Condition (Stages 1 through 4).
3. Owners of Public Water Supply intakes and owners of intakes used for irrigation with a capacity greater than 100,000 gallons per day will complete the following activities within 14 days after the Stage 1 LIC declaration:
 - a. Notify their water customers and employees of the Low Inflow Condition through public outreach and communication efforts.
 - b. Request that their water customers and employees implement voluntary water use restrictions, in accordance with their drought response plans, which may include:
 - Reduction of lawn and landscape irrigation to no more than two days per week (i.e. residential, multi-family, parks, streetscapes, schools, etc).
 - Reduction of residential vehicle washing.

At this stage, the goal is to reduce water usage by 3-5% (or more) from the amount that would otherwise be expected. The baseline for this comparison will be generated by each entity and will be based on existing conditions (i.e. drought conditions). For the purposes of determining 'the amount that would

otherwise be expected', each entity may give consideration to one or more of the following:

- Historical maximum daily, weekly, and monthly flows during drought conditions.
 - Increased customer base (e.g. population growth, service area expansion) since the historical flow comparison.
 - Changes in major water users (e.g. industrial shifts) since the historical flow comparison.
 - Climatic conditions for the comparison period.
 - Changes in water use since the historical flow comparison.
 - Other system specific considerations.
- c. Provide a status update to the CW-DMAG on actual water withdrawal trends. Discuss plans for moving to mandatory restrictions, if required.
4. Owners of Large Water Intakes, other than those referenced in item 3 above, will complete the following activities within 14 days after the Stage 1 LIC declaration:
- a. Notify their customers and employees of the Low Inflow Condition through public outreach and communication efforts.
 - b. Request that their customers and employees conserve water through reduction of water use, electric power consumption, and other means.
 - c. Provide a status update to the CW-DMAG on actual water withdrawal trends.

Stage 2 Actions

1. The Licensee will declare a Stage 2 Low Inflow Condition (LIC) and notify the CW-DMAG if:
- a. On the first day of the month, the Storage Index is at or below 75% of the Target Storage Index, but greater than 57% of the Target Storage Index, while providing the Stage 1 Minimum Project Flows during the previous month.
- and either of the following conditions exists:
- b. The U.S. Drought Monitor Three-Month Numeric Average has a value greater than or equal to 2.
 - c. The sum of the actual rolling six-month average streamflows at the Monitored USGS Streamflow Gages is equal to or less than 65% of the sum of the period of record rolling average streamflows for the same six-month period.
2. The Licensee will complete the following activities within 5 days after the Stage 2 LIC declaration:
- a. Eliminate prescribed recreation flow releases at this stage and all subsequent stages. Reduce the Project Flow Requirements by 95% of the difference between the normal Project Flow Requirements and Critical Flows. These reduced flows are referred to as Stage 2 Minimum Project Flows.
 - b. Reduce the Stage 1 Minimum Elevations by one additional foot at Lake James (three feet total below Normal Minimum Elevation) and two additional

feet at Lake Norman (four feet total below Normal Minimum Elevation) and by one additional foot (two feet total below Normal Minimum Elevations) at each of the other Project reservoirs but not to levels at any reservoir below the applicable Critical Reservoir Elevation. These elevations are referred to as the Stage 2 Minimum Elevations.

- c. Update its Web site and IVR messages to account for the impacts of the LIP on reservoir levels, usability of the Licensee's public access areas, and recreation flow schedules.
 - d. Notify the FERC, the USFWS, the USBIA, NMFS, and the Catawba Indian Nation of the Stage 2 LIC declaration.
 - e. Provide bi-weekly information updates to owners of Large Water Intakes about reservoir levels, meteorological forecasts, and inflow of water into the system.
 - f. In addition the Licensee may, at its sole discretion, modify or suspend its use of selected operating procedures that are designed for periods of normal or above normal inflow to optimize the water storage capabilities of the Project, including the Normal Maximum Elevations and Normal Target Elevations for reservoir levels; the Spring Reservoir Level Stabilization Program; the Wylie High Inflow Protocol; and at Lake Wateree, the Spring Stable Flow Periods and Floodplain Inundation Periods. These modifications and suspensions may be used at the Licensee's sole discretion in any Low Inflow Condition (Stages 1 through 4).
3. Owners of Public Water Supply intakes and owners of intakes used for irrigation with a capacity greater than 100,000 gallons per day will complete the following activities within 14 days after the Stage 2 LIC declaration:
- a. Notify their water customers and employees of the continued Low Inflow Condition and movement to mandatory water use restrictions through public outreach and communication efforts.
 - b. Require that their water customers and employees implement mandatory water use restrictions, in accordance with their drought response plans, which may include:
 - Limiting lawn and landscape irrigation to no more than two days per week (i.e. residential, multi-family, parks, streetscapes, schools, etc).
 - Eliminating residential vehicle washing.
 - Limiting public building, sidewalk, and street washing activities except as required for safety and/or to maintain regulatory compliance.
- At this stage, the goal is to reduce water usage by 5-10% (or more) from the amount that would otherwise be expected (as discussed in Stage 1 above).
- c. Enforce mandatory water use restrictions through the assessment of penalties.
 - d. Provide a status update to the CW-DMAG on actual water withdrawal trends.
4. Owners of Large Water Intakes, other than those referenced in item 3 above, will complete the following activities within 14 days after the Stage 2 LIC declaration:

- a. Continue informing their customers and employees of the Low Inflow Condition through public outreach and communication efforts.
- b. Request that their customers and employees conserve water through reduction of water use, electric power consumption, and other means.
- c. Provide a status update to the CW-DMAG on actual water withdrawal trends.

Stage 3 Actions

1. The Licensee will declare a Stage 3 Low Inflow Condition (LIC) and notify the CW-DMAG if:
 - a. On the first day of the month, the Storage Index is at or below 57% of the Target Storage Index, but greater than 42% of the Target Storage Index, while providing the Stage 2 Minimum Project Flows during the previous month.and either of the following conditions exists:
 - b. The U.S. Drought Monitor Three-Month Numeric Average has a value greater than or equal to 3.
 - c. The sum of the actual rolling six-month average streamflows at the Monitored USGS Streamflow Gages is equal to or less than 55% of the sum of the period of record rolling average streamflows for the same six-month period.
2. The Licensee will complete the following activities within 5 days after the Stage 3 LIC declaration:
 - a. Reduce the Project Flow Requirements to Critical Flows. These reduced flows are referred to as Stage 3 Minimum Project Flows.
 - b. Reduce the Stage 2 Minimum Elevations by seven additional feet at Lake James (ten feet total below Normal Minimum Elevation) and one additional foot at Lake Norman (five feet total below Normal Minimum Elevation) and by one additional foot (three feet total below Normal Minimum Elevations) at each of the other Project reservoirs but not to levels at any reservoir below the applicable Critical Reservoir Elevation. These elevations are referred to as the Stage 3 Minimum Elevations.
 - c. Update its Web site and IVR messages to account for the impacts of the LIP on reservoir levels, usability of the Licensee's public access areas, and recreation flow schedules.
 - d. Notify the FERC, the USFWS, the USBIA, NMFS, and the Catawba Indian Nation of the Stage 3 LIC declaration.
 - e. Provide bi-weekly information updates to owners of Large Water Intakes about reservoir levels, meteorological forecasts, and inflow of water into the system.
 - f. In addition the Licensee may, at its sole discretion, modify or suspend its use of selected operating procedures that are designed for periods of normal or above normal inflow to optimize the water storage capabilities of the Project, including the Normal Maximum Elevations and Normal Target Elevations for reservoir levels; the Spring Reservoir Level Stabilization Program; the Wylie High Inflow Protocol; and at Lake Wateree, the Spring Stable Flow Periods

and Floodplain Inundation Periods. These modifications and suspensions may be used at the Licensee's sole discretion in any Low Inflow Condition (Stages 1 through 4).

3. Owners of Public Water Supply intakes and owners of intakes used for irrigation with a capacity greater than 100,000 gallons per day will complete the following activities within 14 days after the Stage 3 LIC declaration:
 - a. Notify their water customers and employees of the continued Low Inflow Condition and movement to more stringent mandatory water use restrictions through public outreach and communication efforts.
 - b. Require that their water customers and employees implement increased mandatory water use restrictions, in accordance with their drought response plans, which may include:
 - Limiting lawn and landscape irrigation to no more than one day per week (i.e. residential, multi-family, parks, streetscapes, schools, etc).
 - Eliminating residential vehicle washing.
 - Limiting public building, sidewalk, and street washing activities except as required for safety and/or to maintain regulatory compliance.
 - Limiting construction uses of water such as dust control.
 - Limiting flushing and hydrant testing programs, except to maintain water quality or other special circumstances.
 - Eliminating the filling of new swimming pools.

At this stage, the goal is to reduce water usage by 10-20% (or more) from the amount that would otherwise be expected (as discussed in Stage 1 above).

- c. Enforce mandatory water use restrictions through the assessment of penalties.
 - d. Encourage industrial/manufacturing process changes that reduce water consumption.
 - e. Provide a status update to the CW-DMAG on actual water withdrawal trends.
4. Owners of Large Water Intakes, other than those referenced in item 3 above, will complete the following activities within 14 days after the Stage 3 LIC declaration:
 - a. Continue informing their customers and employees of the Low Inflow Condition through public outreach and communication efforts.
 - b. Request that their customers and employees conserve water through reduction of water use, electric power consumption, and other means.
 - c. Encourage industrial/manufacturing process changes that reduce water consumption.
 - d. Provide a status update to the CW-DMAG on actual water withdrawal trends.

Stage 4 Actions

1. The Licensee will declare a Stage 4 Low Inflow Condition (LIC) and notify the CW-DMAG if:

- a. On the first day of the month, the Storage Index is at or below 42% of the Target Storage Index, while providing the Stage 3 Minimum Project Flows during the previous month.

and either of the following conditions exists:

- b. The U.S. Drought Monitor Three-Month Numeric Average has a value of 4.
- c. The sum of the actual rolling six-month average streamflows at the Monitored USGS Streamflow Gages is equal to or less than 40% of the sum of the period of record rolling six-month average streamflows for the same six-month period.

2. The Licensee will:

- a. Continue to provide Critical Flows as long as possible.
- b. Reduce the Stage 3 Minimum Elevations to the Critical Reservoir Elevations.
- c. Establish a meeting date and notify the CW-DMAG within 1 day following the Stage 4 LIC declaration.
- d. Notify the FERC, the USFWS, the USBIA, NMFS, and the Catawba Indian Nation of the Stage 4 LIC declaration.
- e. Continue to update its Web site and IVR messages to account for the impacts of the LIP on reservoir levels, usability of the Licensee's public access areas, and recreation flow schedules.
- f. Provide bi-weekly information updates to owners of Large Water Intakes about reservoir levels, meteorological forecasts, and inflow of water into the system.
- g. In addition the Licensee may, at its sole discretion, modify or suspend its use of selected operating procedures that are designed for periods of normal or above normal inflow to optimize the water storage capabilities of the Project, including the Normal Maximum Elevations and Normal Target Elevations for reservoir levels; the Spring Reservoir Level Stabilization Program; the Wylie High Inflow Protocol, and at Lake Wateree, the Spring Stable Flow Periods and Floodplain Inundation Periods. These modifications and suspensions may be used at the Licensee's sole discretion in any Low Inflow Condition (Stages 1 through 4).

Note: Once a Stage 4 LIC is declared, the Remaining Usable Storage in the reservoir system is small and can be fully depleted in a matter of weeks or months. Groundwater recharge may also contribute to declining reservoir levels. For these reasons in the Stage 4 LIC, the Licensee may not be able to ensure that flow releases from its hydro developments will meet or exceed Critical Flows or that reservoir elevations will be greater than or equal to the Critical Reservoir Elevations.

3. Owners of Public Water Supply intakes and owners of intakes used for irrigation with a capacity greater than 100,000 gallons per day will complete the following activities within 14 days after the Stage 4 LIC declaration:
 - a. Notify their water customers and employees of the continued Low Inflow Condition and movement to emergency water use restrictions through public outreach and communication efforts.

- b. Restrict all outdoor water use.
- c. Implement emergency water use restrictions in accordance with their drought response plans, including enforcement of these restrictions and assessment of penalties.
- d. Prioritize and meet with their commercial and industrial large water customers to discuss strategies for water reduction measures including development of an activity schedule and contingency plans.
- e. Prepare to implement emergency plans to respond to water outages.

At this level, the goal is to reduce water usage by 20-30% (or more) from the amount that would otherwise be expected (as discussed in Stage 1 above).

- 4. Owners of Large Water Intakes on the CW-DMAG, other than those referenced in item 3 above, will complete the following activities within 14 days after the Stage 4 LIC declaration:
 - a. Continue informing their customers and employees of the Low Inflow Condition through public outreach and communication efforts.
 - b. Request that their customers and employees conserve water through reduction of water use, electric power consumption, and other means.
 - c. Encourage industrial/manufacturing process changes that reduce water consumption.
 - d. Provide a status update to the CW-DMAG on actual water withdrawal trends.
- 5. The CW-DMAG will:
 - a. Meet within 5 days after the declaration of the Stage 4 LIC and determine if there are any additional measures that can be implemented to:
 - (1) reduce water withdrawals without creating more severe regional problems;
 - (2) reduce water releases from the Project without creating more severe regional problems; or
 - (3) use additional reservoir storage without creating more severe regional problems.
 - b. Work together to develop plans and implement any additional measures identified above.

Recovery from the Low Inflow Protocol

- 1. Recovery under the LIP as conditions improve will be accomplished by reversing the staged approach outlined above, except that:
 - a. All three of the trigger points identified above for declaring the lower numbered stage must be met or exceeded before returning reservoir minimum elevations and Project flows to levels specified in that LIC stage, Low Inflow Watch, or Normal Conditions.
 - b. The following groundwater level trigger points must also be attained before returning reservoir minimum elevations and Project flows to the levels specified in that LIC stage, Low Inflow Watch, or Normal Conditions:

USGS has reviewed available well records and has determined that there are existing wells with an adequate period that can be used for this process and has also determined that additional wells are advised in order to include groundwater data as part of the recovery. The CW-DMAG and the Catawba-Wateree Water Management Group (WMG) will work together to revise the plan for groundwater monitoring by December 31, 2007 and will update the table below.

Groundwater Trigger Points (depth below land surface (feet)) for Returning to the Indicated Stage					
Groundwater Monitor [Reg.=regolith; BR=bedrock]	Stage 3 (a)	Stage 2 (b)	Stage 1 (c)	Stage 0 (d)	Normal (d)
#1 Future Well Placeholder					
#2 Future Well Placeholder					
#3 Future Well Placeholder					
#4 Future Well Placeholder					
#5 Future Well Placeholder					
#6 USGS Langtree Peninsula RS Reg. well MW-2 & BR well MW-2D	24.91	23.61	22.21	18.21	18.21
#7 USGS Linville RS NC-220 BR well	2.74	2.19	2.11	2.04	2.04
#8 NC DWR Glen Alpine BR well L 76G2	10.01	9.03	8.32	7.69	7.69
#9 Future Well Placeholder					
#10 Future Well Placeholder					

Note: USGS groundwater levels calculated from daily mean data. North Carolina Division of Water Resources (NCDWR) water levels calculated from hourly data. All trigger levels calculated from water levels collected through the 2005 Water Year. Trigger groundwater levels may be updated on a yearly or water-year basis.

Footnotes:

- (a) Stage 3: Period of record low water level
- (b) Stage 2: 10th percentile
- (c) Stage 1: 25th percentile
- (d) Stage 0 and Normal: 50th percentile

2. The NCDENR, SCDNR, SCDHEC, USGS and the Licensee will determine when attainment of the groundwater trigger points for recovery is reached.
3. The Licensee will directly notify the CW-DMAG members within 5 days following attainment of all the trigger points necessary to recover to a lower stage of the LIC, Low Inflow Watch, or Normal Conditions.
4. The Licensee will update its Web site and IVR messages to account for the impacts of the LIP on reservoir levels, usability of the Licensee's public access areas, and recreation flow schedules.