

Stanly County Utilities Water Shortage Response Plan
Low Inflow Protocol
for the
Yadkin & Yadkin-Pee Dee River Hydroelectric Projects

PURPOSE

The purpose of this Low Inflow Protocol (LIP) is to establish procedures for adjusting operations during periods of low inflow to the Yadkin Hydroelectric Project owned and operated by Alcoa Power Generating Inc. (Alcoa-Yadkin) and the Yadkin-Pee Dee River Hydroelectric Project owned and operated by Progress Energy Carolinas, Inc. (PE) (collectively, the Licensees). The LIP is based on the assumption that parties with interests in the water storage in the Projects will share responsibility to conserve the limited water supply.

OVERVIEW

The LIP will be implemented during periods when there is not enough water flowing into the Projects' reservoirs to meet the Projects' instream flow requirements while maintaining reservoir levels within normal ranges. The LIP provides trigger points and procedures within which the Licensees will operate the Yadkin and Yadkin-Pee Dee River Hydroelectric Projects as well as water withdrawal reduction measures for other water users in portions of the Yadkin-Pee Dee River Basin.

The Licensees will provide flow from storage in project reservoirs to support power production and to provide instream flows in accordance with their respective FERC licenses. During periods of normal inflow, reservoir levels will be maintained within normal operating ranges. During times that inflow is not adequate to provide required instream flows and maintain reservoir levels within normal operating ranges, the Licensees will reduce discretionary releases for hydroelectric generation. If reservoir storage drops and climatology or hydrologic conditions worsen until trigger points defined in this document are reached, then the Licensees will implement the provisions of this protocol and begin meeting with the designated agencies and water users to discuss the LIP. As conditions worsen progressive stages of the LIP will allow additional use of the available water storage inventory, allow reductions in instream flow releases and require reductions in water withdrawals.

The goal of this staged LIP is to take the actions needed in the Yadkin-Pee Dee River Basin to delay the point at which available water storage is fully depleted. The LIP is intended to provide additional time to increase the probability that precipitation will restore streamflow and reservoir levels to regain normal ranges. The amount of additional time that is gained during the LIP depends on the diagnostic accuracy of the trigger points, the amount of regulatory flexibility each of the Licensees has to operate their Projects, and the effectiveness of the Licensees and the water users in working together to implement required actions and achieve significant water use reductions. Water users in the Yadkin – Pee Dee River Basin not subject to this LIP must comply with all applicable State and local drought response requirements.

Implementation of this LIP and movement between the various stages are based on measurements of Stream Gage Three-Month Rolling Average Flow, U. S. Drought Monitor Three-Month Numeric Average, and the elevation of water in the Projects' reservoirs. The calculation of these triggers and specific thresholds associated with each stage of the LIP are detailed in this document.

Recognizing that improvements to the LIP may be identified during the new license period, the LIP will be re-evaluated and modified periodically. Decisions on modifications will be made on a consensus basis by the Licensees and the States of North Carolina and South Carolina after consultation with other members of the Yadkin-Pee Dee River Basin Drought Management Advisory Group (YPD-DMAG).

KEY DEFINITIONS, FACTS, AND ASSUMPTIONS

1. Low Inflow Period – A period of time when there is not enough water flowing into the Projects' reservoirs to meet the Projects' Required Instream Flows while maintaining reservoir levels within Normal Operating Ranges.
2. Required Instream Flows – Flows that will be provided to meet aquatic habitat, water quality and navigation needs unless operating under the LIP or Maintenance & Emergency Plan (MEP). The new license for the Yadkin and Yadkin-Pee Dee River Projects will include required instream flows.
3. Public Information System – The Licensees will develop and provide information on reservoir water levels, project releases, usability of public access areas, reservoir inflows, meteorological forecasts, Stream Gage Three-Month Rolling Average Flow calculations, U.S. Drought Monitor Three-Month Numeric Average calculations, LIP status, and MEP implementation on their respective websites.
4. Usable Storage – The cumulative storage contained in High Rock, Tuckertown, Narrows, and Tillery Developments between the measured reservoir elevations and Critical Elevation in each reservoir.
5. Total Usable Storage – The cumulative storage contained in High Rock, Tuckertown, Narrows, and Tillery Developments between Full Pond and the Critical Elevation in each reservoir.
6. Stream Gage Three-Month Rolling Average Flow – The three-month rolling average of streamflow at the following USGS stream gages calculated on the last day of each month:
 - Yadkin River at Yadkin College (02116500)
 - South Yadkin River near Mocksville (02118000)
 - Abbotts Creek at Lexington (02121500)
 - Rocky River near Norwood (02126000)
 - Little River near Star (02128000)

This average will be calculated at the end of each month by averaging the monthly average of the current month and the two preceding months. The sum of the three-month rolling average for these five gage stations will be compared to the Historic Stream Gage Three-Month Rolling Average Flow.

7. Historic Stream Gage Three-Month Rolling Average Flow – The monthly average flow for the period of record for the five designated stream gages will be used to calculate the historic three-month rolling average flow the last day of each month of the year by averaging the monthly average flow for each month and the preceding two months.

8. Full Pond (Normal Maximum Elevation) – Full Pond is the level of a reservoir (measured in feet, USGS datum) that corresponds to the point at which water would first begin to spill from each reservoir’s dam if the Licensees take no action. The full pond elevation corresponds to the lowest point along the top of the spillway (including flashboards) for reservoirs without flood gates; and to the lowest point along the top of the flood gates for reservoirs that have flood gates. The Full Pond elevations for the Yadkin and Yadkin-Pee Dee Projects’ reservoirs are listed in Table 1.

Table 1. Full Pond or Normal Maximum Elevation

Reservoir	Full Pond Elevation (feet, USGS datum)
High Rock	623.9
Tuckertown	564.7
Narrows	509.8
Falls	332.8
Tillery	278.2
Blewett Falls	178.1

9. Normal Operating Range for Reservoir Levels – The band of reservoir levels within which the Licensees normally attempt to maintain a given reservoir on a given day. Each reservoir has its own specific Normal Operating Range, bounded by Full Pond elevation and Normal Minimum Elevation. If net inflows to the reservoir are within a reasonable tolerance 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.
10. Normal Minimum Elevation – (NME) The level of a reservoir (measured in feet, USGS datum) that defines the bottom of the reservoir’s Normal Operating Range for a given day of the year. Normal Minimum Elevations for the Yadkin and Yadkin-Pee Dee Projects’ reservoirs are listed in Table 2.

Table 2. Normal Minimum Reservoir Elevations (feet, USGS datum)

Month	High Rock	Tuckertown	Narrows	Falls	Tillery	Blewett Falls
Full Pond	623.9	564.7	509.8	332.8	278.2	178.1
January	615.9	561.7	503.8	328.8	272.2	172.1
February	615.9	561.7	503.8	328.8	272.2	172.1
March	615.9	561.7	503.8	328.8	272.2	172.1
April	615.9	561.7	503.8	328.8	272.2	172.1
May	615.9	561.7	503.8	328.8	272.2	172.1
June	619.9	561.7	506.8	328.8	275.2	172.1
July	619.9	561.7	506.8	328.8	275.2	172.1
August	619.9	561.7	506.8	328.8	275.2	172.1
September	619.9	561.7	506.8	328.8	275.2	172.1
October	619.9	561.7	506.8	328.8	275.2	172.1
November	619.9	561.7	506.8	328.8	275.2	172.1
December	615.9	561.7	503.8	328.8	272.2	172.1

11. LIP Stage (0-4) Minimum Elevation – The adjusted minimum elevations that are allowed under the various stages of this LIP. Each stage of the LIP has specific criteria that will establish the minimum elevations that are allowed under that stage designation.
12. Public Water System- For the purposes of this Low Inflow Protocol, a public water system is any publicly or privately owned water system that supplies potable water to the public having an instantaneous withdrawal capacity of one million gallons per day or more, and withdraws from storage in the Yadkin or Yadkin-Pee Dee hydroelectric projects' reservoirs.
13. Non-public Water User- For the purposes of this Low Inflow Protocol, a non-public water user is any publicly or privately owned water withdrawer that withdraws water for uses other than supplying potable water to the public, having an instantaneous withdrawal capacity of one million gallons per day or more, that withdraws from storage in the Yadkin or Yadkin-Pee Dee hydroelectric projects' reservoirs.
14. U.S. Drought Monitor – A synthesis of multiple indices, outlooks and news accounts that represent 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 current U.S. Drought Monitor and explanatory material can be found at <http://www.drought.unl.edu/dm/monitor.html>.
15. U.S. Drought Monitor Three-Month Numeric Average – If the U.S. Drought Monitor has a designation ranging from D0 to D4 as of the last day of a month for any part of the Yadkin-Pee Dee River Basin that drains to the Blewett Falls development, the basin will be assigned a numeric value for that month. The numeric value will equal the highest U.S. Drought Monitor designation (e.g. D0=0, D1=1, D2=2, D3=3 and D4=4) for any part of the Yadkin-Pee Dee River Basin draining to Blewett Falls development as of the last day of the month. A normal condition in the basin, defined as the absence of a drought designation, will be assigned a numeric value of negative one (-1). A running average of the numeric values of the current month and previous two months will be calculated at the end of the month and designated as the U.S. Drought Monitor Three-Month Numeric Average for purposes of this Low Inflow Protocol.
16. Critical Reservoir Elevation – The level of water in a reservoir (measured in feet, USGS datum) below which a Public Water System intake, Non-public Water User's intake, or hydropower plant located on the reservoir cannot operate. Critical Reservoir Elevations are defined Table 3.

Table 3. Critical Reservoir Elevation

Reservoir	Critical Reservoir Elevation (feet USGS Datum)	Type
High Rock	609.9	Non-public water user
Tuckertown	560.7	Public Water Supply
Narrows	486.8	Public Water Supply
Falls	322.8	Power Production
Tillery	268.2	Power Production
Blewett Falls	168	Public Water Supply

17. Critical Flow – The instantaneous minimum flow releases from the hydroelectric projects that are necessary to prevent long-term or irreversible damage to aquatic communities consistent with the resource management goals and objectives for the affected stream reaches and necessary to provide some basic level of water quality maintenance in affected river reaches. For the purposes of this LIP, the Critical Flows are:
- Falls Development – the Critical Flow from the Falls Development is equal to the Critical Flow from the Blewett Falls Development minus the contributory flow from the Rocky River, measured at the USGS gage at Norwood, multiplied by 0.91. This value will be calculated using the flow measurement at midnight to calculate the Critical Flow for the next day.
 - Tillery Development – the Critical Flow from the Tillery Development is the same as Required Instream Flow.
 - Blewett Falls Development – the Critical Flow from the Blewett Falls Development is 925 cfs.
18. Organizational Abbreviations – Organizational abbreviations include Alcoa Power Generating Inc. (Alcoa-Yadkin), Progress Energy (PE), NC Department of Environment and Natural Resources (NCDENR), North Carolina Division of Water Resources (NCDWR), North Carolina Division of Water Quality (NCDWQ), North Carolina Wildlife Resources Commission (NCWRC), South Carolina Department of Natural Resources (SCDNR), South Carolina Department of Health and Environmental Control (SCDHEC), the United States Fish and Wildlife Service (USFWS), High Rock Lake Association (HRLA), Badin Lake Association (BLA), and South Carolina Pee Dee River Coalition (SCPDRC).
19. Yadkin-Pee Dee River Basin Drought Management Advisory Group (YPD-DMAG) – Membership on the YPD-DMAG is open to at least one representative from each of the following organizations that are signers of the final settlement agreement:
- Alcoa-Yadkin
 - PE
 - NCDENR - DWR,
 - NCDENR - DWQ,
 - NCWRC
 - SCDNR
 - SCDHEC
 - USFWS
 - Duke Power
 - HRLA
 - BLA
 - Lake Tillery homeowners representation
 - SCPDRC
 - All owners of a public water system intake or a non-public water user's intake that withdraw from storage in one of the Yadkin River or Yadkin-Pee Dee River Projects' reservoirs.

The Licensees will share responsibility to convene the YPD-DMAG to coordinate a response to a Low Inflow Condition. The YPD-DMAG will meet annually during April, regardless of the

Low Inflow Condition, to reacquaint representatives, review prior year activities, discuss data input from public water system intake owners and non-public water users, and discuss other issues relevant to the LIP. Membership in the YPD-DMAG may be expanded based on a consensus of the members. The Licensees will maintain an active roster of the YPD-DMAG, will prepare meeting summaries of all YPD-DMAG meetings, and will make these meeting summaries available to the public.

20. Revising the LIP -- During the new license period, the YPD-DMAG will be convened at least once every five (5) years to review and, if necessary, update the LIP. Modifications to the Licensees' responsibilities under the LIP, if any, will be determined by consensus of the Licensees and the States of North Carolina and South Carolina (specifically NCDWR, NCDWQ, SCDNR, SCDHEC) after consultation with other members of the YPD-DMAG. Modifications to the responsibilities of other members (not FERC licensees) of the YPD-DMAG under the LIP, if any, will be determined by consensus of those members after consultation with the Licensees. Approved modifications will be incorporated through revision of this LIP. The YPD-DMAG may appoint an *ad hoc* committee to consider issues relevant to the LIP. Issues such as the impacts of sediment fill on reservoir storage volume calculations 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 considered.
21. Consensus – Consensus is reached when all appropriate parties can “live with” the expected outcome or proposal being made.
22. Water Withdrawal Data Collection and Reporting- The owners of all intakes impacted by this protocol are to comply with water use reporting requirements of the appropriate State Agencies during periods when the LIP is in effect. The YPD-DMAG can request relevant water use information from the appropriate state agency or directly from the owners of individual intakes.
23. Drought Response Plan Updates – All public water supply intake owners and non-public water users subject to this LIP will review and update their drought response plans, or develop a plan if they do not have one, to ensure compliance and coordination with this LIP, including the authority to enforce the provisions outlined herein. Nothing in this LIP is intended to prevent public water systems or non-public water users from taking more restrictive actions or from complying with any applicable law or regulation.
24. Relationship Between the LIP and the Maintenance & Emergency Protocol (MEP) – The MEP outlines the general approach the Licensees will take under certain emergency, 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 to instream flow releases, minimum flow releases, and the reservoir level operating ranges are allowed. Lowering levels of Project reservoirs caused by situations addressed under the MEP will not invoke implementation of this 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 Licensees may, however, choose to continue with the LIP if desirable. Subsequent notification will be provided by the Licensees as soon as practicable.

LIP Triggers and Actions Summary Table (Temporary Inclusion)

Summary for discussion purposes February 25, 2006					
Triggers	Stage 0 (Zero)	Stage 1	Stage 2	Stage 3	Stage 4
Elevation Trigger	Elevation in HRL or Narrows or Tillery at or below Norm Min Elevation	Elevation in HRL and Narrows and Tillery within ¼ foot of Norm Min Elevation minus 1ft	Elevation in HRL and Narrows and Tillery within ¼ foot of Norm Min Elevation minus 2ft	Elevation in HRL and Narrows and Tillery within ¼ foot of Min Elevation minus 3ft	Elev in HRL and Narrows and Tillery within ¼ foot of half of distance between Norm Min Elevation minus 3ft and Crit Elev
Streamflow Trigger	<= 85% of 3mo Hist Ave	<= 78% of 3mo Hist Ave	<= 65% of 3mo Hist Ave	<= 55% of 3mo Hist Ave	<= 40% of 3mo Hist Ave
DM Trigger	>= D0	>= D1	>= D2	>= D3	>= D4
Actions					
Flow Adjustments	Releases limited to Required Instream Flows	Req Flows reduced by 45% of difference between ReqISF and Critical Flows	Req Flows reduced by 75% of difference between ReqISF and Critical Flows	Req Flows reduced to Critical Flows	Critical Flows as long as possible then adjust as decided by YPD-DMAG
Reduced NME	Reduce NME to	Reduce NME to	Reduce NME to	Reduce NME to	Reduce NME to
High Rock	1 ft below Norm Min	2 ft below Norm Min	3 ft below Norm Min	Drop by half of the distance from Stage 2 Reduced NME and Critical Elevation	Critical Elevation
Tuckertown	Norm Min	Norm Min	Norm Min	Norm Min	Critical Elevation
Narrows	1 ft below Norm Min	2 ft below Norm Min	3 ft below Norm Min	Drop by half of the distance from Stage 2 Reduced NME and Critical Elevation	Critical Elevation
Falls	Norm Min	Norm Min	Norm Min	Norm Min	Critical Elevation
Tillery	1 ft below Norm Min	2 ft below Norm Min	3 ft below Norm Min	Drop by half of the distance from Stage 2 Reduced NME and Critical Elevation	Critical Elevation
Blewett Falls	Norm Min	1 ft below Norm Min	2 ft below Norm Min	3 ft below Norm Min	Critical Elevation

All numbers in this table are subject to verification and may change based on the results of analysis using the computer models designed to analyze water quantity related issues in the relicensing process.

PROCEDURE

The specifics of these PROPOSED procedures and trigger points, especially adjustments to minimum elevations and percentages of historic stream flows, need to be validated by the computer models used for analyzing management options.

During a Low Inflow Watch or Low Inflow Condition (as defined below), the Licensees and other water users will follow the protocol set forth below regarding communications and adjustments to hydropower and instream 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. Initiation of this LIP will be based on analysis of the trigger conditions on the first day of each month. Reservoir water elevation as of midnight between the last day of the previous month and the first day of the current month will be used in combination with the U.S. Drought Monitor Three-Month Numeric Average and the Stream Gage Three-Month Rolling Average Flow to determine the need to declare a Low Inflow Watch or change the stage of Low Inflow Conditions.

Summary of LIP Triggers (subject to change based on modeling results)					
Stage	Elevation		US Drought Monitor Three-Month Numeric Average		Stream Gage Three-Month Rolling Average
0	Elevation of High Rock or Narrows or Tillery <= NML	and either	>= 0	or	<= 85 % Historical Average
1	Elevation of High Rock and Narrows and Tillery <= LIP Stage 0 (Zero) Minimum Elevation	and either	>= 1	or	<= 78 % Historical Average
2	Elevation of High Rock and Narrows and Tillery <= LIP Stage 1 Minimum Elevation	and either	>= 2	or	<= 65 % Historical Average
3	Elevation of High Rock and Narrows and Tillery <= LIP Stage 2 Minimum Elevation	and either	>= 3	or	<= 55 % Historical Average
4	Elevation of High Rock and Narrows and Tillery <= Lip Stage 3 Minimum Elevation	and either	>= 4	or	<= 40 % Historical Average

Stage 0 (Zero) - Low Inflow Watch:

The Licensees will monitor reservoir elevations, the US Drought Monitor and the designated stream gages and will declare a Stage 0 (Zero) - Low Inflow Watch for the month if the following conditions are present on the first of the month:

The Elevation in High Rock or Narrows or Tillery reservoirs is at or below the Normal Minimum Elevation

AND, EITHER

The U.S. Drought Monitor Three-Month Numeric Average for the Yadkin-Pee Dee River Basin is equal to or greater than zero (0).

OR

The Stream Gage Three-Month Rolling Average Flow for the monitored stream gages is less than or equal to 85% of the Historic Stream Gage Three-Month Rolling Average Flow

When a Stage 0 (Zero) – Low Inflow Watch is declared:

1. The Licensees will limit downstream releases to only those required to meet Required Instream Flows.
2. The Licensees will activate the Y-PD DMAG and initiate monthly meetings or conference calls to be held on the Monday before the second Tuesday. Monthly discussions will:
 - a. Review provisions of this LIP
 - b. Clarify communication channels between YPD-DMAG members
 - c. Review hydrological status of the basin
 - d. Review the roles of each YPD-DMAG member and discuss their plans for responding if a Low Inflow Condition is declared
 - e. Review information reporting by YPD-DMAG members, including a storage history and forecast from the Licensees, a water use history and forecast from each water user on the YPD-DMAG, and state-wide drought response status (including, but not limited to, impact to water quality, fisheries, wildlife, etc.) from the state agencies.
 - f. Public communications.
3. The Licensees may lower the minimum elevation for High Rock, Narrows and Tillery reservoirs to one foot below the Normal Minimum Elevation designated in their respective license and listed in Table 2. These elevations shall be designated as LIP Stage 0 (Zero) Minimum Elevations

Stage 1 Low Inflow Condition:

The Licensees will monitor reservoir elevations, the US Drought Monitor and the designated stream gages and will declare a Stage 1 – Low Inflow Condition for the month if the following conditions are present on the first of the month:

The elevations in High Rock and Narrows and Tillery reservoirs are all within ¼ foot of or less than the Stage 0 (Zero) Minimum Elevation

AND EITHER

The U.S. Drought Monitor Three-Month Numeric Average for the Yadkin-Pee Dee River Basin is equal to or greater than one (1).

OR

The Stream Gage Three-Month Rolling Average Flow for the monitored stream gages is equal to or less than 78% of the Historic Stream Gage Three-Month Rolling Average Flow

When a Stage 1 Low Inflow Condition is declared:

1. The Licensees will:
 - a. Reduce Instream Flow releases by 45% of the difference between Required Instream Flows and Critical Flows for each project with a designated Critical Flow within seven days after designating a Stage 1 Low Inflow Condition. The resulting levels of flows will be designated as the LIP Stage 1 Required Instream Flows.
 - b. Update websites to account for the impacts of the LIP on flow releases, reservoir levels and usability of public access areas.
 - c. Provide public water system intake owners and non-public water users with weekly updates on reservoir levels and inflow of water into the projects' reservoirs.
2. Owners of public water supply intakes will complete the following activities within 14 days after a Stage 1 - Low Inflow Condition is declared:
 - a. Notify their water customers of the low inflow condition through public outreach and communication efforts.
 - b. Request that their water customers implement voluntary water use restrictions, in accordance with their drought response plans. At this level, the goal is to reduce water withdrawals by approximately 5% from the amount that would otherwise be expected. These restrictions 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.
 - c. Provide a status update to the YPD-DMAG on actual water withdrawal trends and discuss plans for moving to mandatory restrictions, if they are required.
3. Nonpublic Water Users on the YPD-DMAG will complete the following activities within 14 days after a Stage 1 - Low Inflow Condition is declared:
 - a. Notify their employees and/or customers of the low inflow condition,
 - b. Request that their employees and customers conserve water through reduction of water use, electric power consumption, and other means, and
 - c. Institute in-house conservation consistent with their drought management plan and minimize consumptive uses to the extent feasible.
4. The Licensees may lower the minimum elevations for High Rock, Narrows and Tillery Reservoirs to one foot below the LIP Stage 0 (Zero) Minimum Elevation. The minimum elevation for Blewett Falls Reservoir may be lowered to one foot below its Normal Minimum

Elevation. These elevations shall be designated as LIP Stage 1 Minimum Elevations and shall not be set below the Critical Elevation on any reservoir.

Stage 2 – Low Inflow Condition:

The Licensees will monitor reservoir elevations, the US Drought Monitor and the designated stream gages and will declare a Stage 2 – Low Inflow Condition for the month if the following conditions are present on the first of the month:

The elevation in High Rock and Narrows and Tillery reservoirs are all within $\frac{1}{4}$ foot of or less than the LIP Stage 1 Minimum Elevation

AND EITHER

The U.S. Drought Monitor Three-Month Numeric Average for the Yadkin-Pee Dee River Basin is equal to or greater than two (2).

OR

The Stream Gage Three-Month Rolling Average Flow for the monitored stream gages is equal to or less than 65% of the Historic Stream Gage Three-Month Rolling Average Flow

When a Stage 2 Low Inflow Condition is declared:

1. The Licensees will:

- a. Reduce Instream Flow releases by 75% of the difference between the Required Instream Flow and the Critical Flow for each project having a designated Critical Flow within seven days after designating a Stage 2 Low Inflow Condition. The resulting levels of flows will be designated as the LIP Stage 2 Required Instream Flows.
- b. Update websites to account for the impacts of the LIP on flow releases, reservoir levels and usability of public access areas.
- c. Provide bi-weekly (twice each week) updates to owners of Large Water Intakes with information about reservoir levels and inflow of water into the system.
- d. Continue conducting monthly or more frequent meeting or conference calls of the YPD-DMAG

2. Owners of public water supply intakes will complete the following activities within 14 days after the Stage 2 - Low Inflow Condition is declared:

- a. Notify their water customers 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 implement mandatory water use restrictions, in accordance with their drought response plans. At this level, the goal is to reduce water withdrawals by approximately 10% from the amount that would otherwise be expected. These restrictions 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.
 - Enforce mandatory water use restrictions through the assessment of penalties.
 - Encourage industrial/manufacturing process changes that reduce water consumption.
 - Provide a status update to the YPD-DMAG on actual water withdrawal trends.
3. Nonpublic Water Users on the YPD-DMAG will complete the following activities within 14 days after the Stage 1 - Low Inflow Condition is declared:
 - a. Notify their employees and/or customers of the low inflow condition through public outreach and communication efforts.
 - b. Request that their employees and customers conserve water through reduction of water use, electric power consumption, and other means.
 - c. Institute in-house conservation consistent with their required drought management plans and minimize consumptive uses to the extent feasible.
 4. The Licensees may lower the minimum elevation for High Rock, Narrows, Tillery and Blewett Falls reservoirs to one foot below the LIP Stage 1 Minimum Elevations. These elevations will be designated as LIP Stage 2 Minimum Elevations and shall not be set below the Critical Elevation on any reservoir.

Stage 3 Low Inflow Condition:

The Licensees will monitor reservoir elevations, the US Drought Monitor and the designated stream gages and will declare a Stage 3 – Low Inflow Condition for the month if the following conditions are present on the first of the month:

The elevation in High Rock and Narrows and Tillery reservoirs is within ¼ foot of or less than the Stage 2 reduced Normal Minimum Elevation

AND EITHER

The U.S. Drought Monitor Three-Month Numeric Average for the Yadkin-Pee Dee River Basin is equal to or greater than to three (3).

OR

The Stream Gage Three-Month Rolling Average Flow for the monitored stream gages is equal to or less than 55% of the Historic Stream Gage Three-Month Rolling Average Flow

When a Stage 3 Low Inflow Condition is declared:

1. The Licensees will:
 - a. Reduce Instream Flow releases to designated Critical Flows.

- b. Update websites to account for the impacts of the LIP on flow releases, reservoir levels and usability of public access areas.
- c. Provide bi-weekly (twice each week) updates to owners of Large Water Intakes with information about reservoir levels and inflow of water into the system.
- d. The Licensees will convene the YAD-DMAG within 5 days after the declaration of the Stage 3 Low Inflow Condition and determine if there are any additional measures that can be implemented to:
 - reduce water withdrawals;
 - reduce water releases from the Projects; or
 - use additional reservoir storage without creating more severe regional problems.
 - work together to develop plans and implement any additional measures identified above.
 - communicate conditions to the public.

Additional measures will be determined by consensus of appropriate parties, as previously defined in this document.

2. Owners of public water supply intakes will complete the following activities within 14 days after the Stage 3 Low Inflow Condition is declared:
 - a. Notify their water customers of the continued low inflow condition and movement to emergency water use restrictions through public outreach and communication efforts. At this level, the goal is to reduce water usage by approximately 20% from the amount that would otherwise be expected.
 - 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 and meet 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.
3. Non- public Water Users on the the YPD-DMAG will complete the following activities within 14 days after a Stage 3 – Low Inflow Condition is declared:
 - a. Continue informing their customers of the low inflow condition through public outreach and communication efforts.
 - b. Request that their customers conserve water through reduction of water use, electric power consumption, and other means.
4. The Licensees may lower the minimum elevation for High Rock, Narrows and Tillery reservoirs by ½ of the distance from the LIP Stage 2 Minimum Elevations and the Critical Elevation. The minimum elevation for Blewett Falls Reservoir may be lowered to one foot

below its LIP Stage 2 Minimum Elevation. These elevations will be designated as LIP Stage 3 Minimum Elevations and shall not be set below the Critical Elevation for any reservoir.

Stage 4 Low Inflow Condition:

The Licensees will monitor reservoir elevations, the US Drought Monitor and the designated stream gages and will declare a Stage 4 – Low Inflow Condition for the month if the following conditions are present on the first of the month:

The elevation in High Rock and Narrows and Tillery reservoirs is within ¼ foot of or less than the Stage 3 reduced Normal Minimum Elevation

AND EITHER

The U.S. Drought Monitor Three-Month Numeric Average for the Yadkin-Pee Dee River Basin is equal to or greater than four (4).

OR

The Stream Gage Three-Month Rolling Average Flow for the monitored stream gages is equal to or less than 40% of the Historic Stream Gage Three-Month Rolling Average Flow

1. The Licensees will:
 - a. Licensees will reduce Required Instream Flow releases to designated Critical Flows.
 - b. Update websites to account for the impacts of the LIP on flow releases, reservoir levels and usability of public access areas.
 - c. Provide bi-weekly (twice each week) updates to owners of Large Water Intakes with information about reservoir levels and inflow of water into the system.
2. The Licensees will convene the YAD-DMAG within 5 days after the declaration of the Stage 3 Low Inflow Condition and determine if there are any additional measures that can be implemented to:
 - a. reduce water withdrawals;
 - b. reduce water releases from the Projects; or
 - c. Utilize additional reservoir storage without creating more severe regional problems.
 - d. Work together to develop plans and implement any additional measures identified above.
 - e. Communicate conditions to the public.

Additional measures will be determined by consensus of appropriate parties, as previously defined in this document.

3. Owners of public water supply intakes will complete the following activities within 14 days after the Stage 3 Low Inflow Condition is declared:
 - a. Notify their water customers of the continued low inflow condition and movement to emergency water use restrictions through public outreach and communication

efforts. At this level, the goal is to reduce water usage by approximately 30% from the amount that would otherwise be expected.

- 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 and meet 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.
4. Non-public Water Users on the YPD-DMAG will complete the following activities within 14 days after a Stage 4 – Low Inflow Condition is declared:
- a. Continue informing their customers of the low inflow condition through public outreach and communication efforts.
 - b. Request that their customers conserve water through reduction of water use, electric power consumption, and other means.
5. The Licensees may lower the minimum elevation for all reservoirs to the Critical Elevations and attempt to keep elevations from dropping below Critical Elevations for as long as possible while providing the required instream flows.

Recovery from the Low Instream Flow Protocol

1. Recovery from the LIP will simply reverse the staged approach described above, except that all three of the trigger points associated with the lower numbered stage must be met or exceeded before returning reservoir levels and flows to that less restrictive LIP stage, Low Inflow Watch, or Normal Conditions.
2. The Licensees will directly notify the YPD-DMAG members within 5 days following attainment of all the trigger points necessary to return to a lower stage of the LIP, Low Inflow Watch, or Normal Conditions. As with declarations of more restrictive LIP Stages, changes to less restrictive Stages will be made on the first of the month.
3. The Licensees will update their websites to account for the impacts of the LIP on reservoir levels and usability of public access areas.