

***Cities of Concord and Kannapolis  
Proposed Interbasin Transfer***

**Hearing Officers' Report**

**Environmental Management Commission**

**North Carolina**

**Department of Environment and Natural Resources  
Division of Water Resources**

***December 2006***

## **PART 3 – ATTACHMENTS**

## ***Attachment A – Minimum Criteria for Drought Management Plan***

General Statute § 143-215.22I(h) states “The certificate shall include a drought management plan that specifies how the transfer shall be managed to protect the source river basin during drought conditions.” At a minimum, the following conditions shall be included in the drought management plan submitted to the Division.

Implementation of the Cities’ drought management plan shall, at a minimum, be linked to declarations of levels of drought severity pursuant to (a) the protocol established in the Low Inflow Protocol (“LIP”) that is included in any FERC license (including via a certificate under 33 U.S.C. § 1341) for Project Nos. 2232, 2206, or 2197 or (b) the drought classifications applied by the North Carolina Drought Management Advisory Council (NC DMAC), whichever is more stringent.

The Cities’ drought management measures shall be at least as stringent as the following measures:

**Stage 1 Actions - ( NC DMAC Moderate Drought)** The goal is to reduce water usage by 3-5% (or more) from the amount that would otherwise be expected. The Cities (and other jurisdictions) shall complete at a minimum the following activities within 14 days after the Stage 1 or Moderate Drought 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.
- c. Provide a status update to the appropriate drought management advisory group and the Division of Water Resources on actual water withdrawal trends and plans for moving to mandatory restrictions, if required.

**Stage 2 Actions - (NC DMAC Severe Drought)** The goal is to reduce water usage by 5-10% (or more) from the amount that would otherwise be expected. The Cities (and other jurisdictions) shall complete at a minimum the following activities within 14 days after the Stage 2 or Severe Drought 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.
- c. Enforce mandatory water use restrictions through the assessment of penalties.
- d. Provide a status update to the appropriate drought management advisory group and the Division of Water Resources on actual water withdrawal trends and plans for moving to increased water restrictions, if required.

**Stage 3 Actions - (NC DMAC Extreme Drought)** The goal is to reduce water usage by 10-20% (or more) from the amount that would otherwise be expected. The Cities (and other jurisdictions) shall complete at a minimum the following activities within 14 days after the Stage 3 or Extreme Drought 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 increased mandatory water use restrictions, in accordance with their drought response plans.
- 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 appropriate drought management advisory group and the Division of Water Resources on actual water withdrawal trends and plans for moving to increased water restrictions, if required.

Stage 4 Actions - (NC DMAC Exceptional Drought) The goal is to reduce water usage by 10-20% (or more) from the amount that would otherwise be expected. The Cities (and other jurisdictions) shall complete at a minimum the following activities within 14 days after the Stage 4 or Exceptional Drought 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. Require that their water customers and employees implement emergency water use restrictions, in accordance with their drought response plans.
- c. Enforce emergency water use restrictions through the assessment of penalties.
- d. Restrict all outdoor water use.
- e. 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.
- f. Provide a status update to the appropriate drought management advisory group and the Division of Water Resources on actual water withdrawal trends and prepare to implement emergency plans to respond to water outages, if required.

***Attachment B – Staff Modeling Analysis of Hearing Officers’ Recommendation***

***Staff Modeling Analysis of Hearing Officers’  
Recommended Alternative***

**North Carolina  
Department of Environment and Natural Resources  
Division of Water Resources**

***December 2006***



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## PURPOSE

The purpose of this attachment is to provide additional information to assess the potential impacts associated with the hearing officer's recommended alternative for the proposed interbasin transfer (IBT) by the Cities of Concord and Kannapolis. The hearing officers are recommending certification of a transfer amount to the Rocky River Basin not to exceed 10 million gallons per day (MGD) on any day from the Yadkin basin and an amount not to exceed 10 MGD on any day from the Catawba basin.

In order to study the potential impacts of the recommended transfer, this report uses modeling results from the Catawba Wateree CHEOPS model and the Yadkin River Basin OASIS model to examine 10 MGD constant IBT scenarios from both source basins. Under the 10 MGD constant IBT scenario, 10 MGD is transferred from the two source basin every day of the year. This represents the worst case impact scenario under the Hearing Officers' recommended alternative.

The analysis in this attachment related to the Catawba River source basin includes a comparison of the 10 MGD constant IBT scenario to a 26 MGD maximum daily demand (MDD) transfer scenario. The 26 MGD MDD transfer represents the requested transfer amount from Catawba River Basin if the requested 10 MGD MDD transfer from the Yadkin River Basin were to be approved. The 26 MGD MDD transfer is modeled as a 16 MGD average day demand (ADD) with monthly fluctuations.

The analysis related to the Yadkin River source basin includes a comparison of several 10 MGD MDD alternatives to a 10 MGD constant IBT scenario. The applicant has requested a 10 MGD MDD transfer amount from the Yadkin.

Additional streamflow and storage information on both the Catawba and Yadkin River basins is also presented in this attachment.

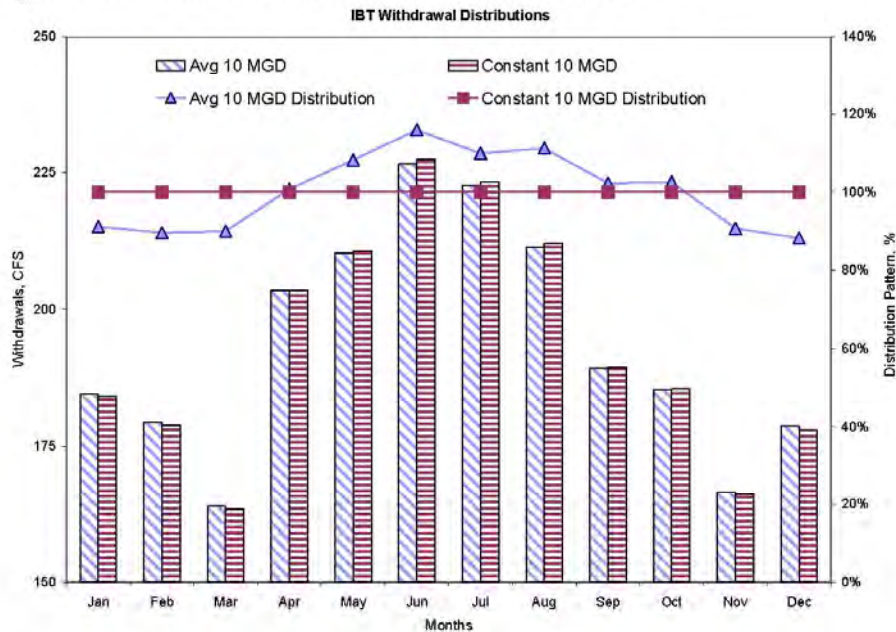
## CATAWBA RIVER BASIN ANALYSIS

For this analysis, a 10 MGD constant IBT scenario and a 10 MGD ADD IBT scenario were compared to a scenario representing the Applicant's Preferred Alternative of 16 MGD ADD (roughly 26 MGD MDD). A comparison scenario was also included using 2035 demands on the system with zero IBT by the cities of Concord and Kannapolis. All IBT from the Catawba River Basin is considered by the model to be withdrawn from Lake Norman.

In modeling the 10 MGD constant IBT scenario, 10 MGD was added to the 2035 total system withdrawal from Lake Norman. For the 10 MGD ADD scenario, a monthly distribution pattern was used to develop the average daily IBT. The average daily IBT was then added to the 2035 demand from Lake Norman.

The withdrawal amounts represented by the two 10 MGD IBT scenarios (constant and ADD) are compared in Figure 1. Notice that the withdrawal for the constant 10 MGD IBT scenario are slightly lower than those for the average 10 MGD IBT scenario during winter months and slightly higher in summer months. It will be shown that this slight difference in withdrawals between the two scenarios produces slight variations in the modeling results.

**Figure 1 - Lake Norman 2035 Water Use Distribution Pattern**



### ***Predicted Impacts - LIP***

Impacts on the number of months of LIP restrictions under the various scenarios being examined are summarized in Table 1. The summary shows that for the 16 MGD ADD IBT scenario, Stage 1 LIP occurrence was observed for one extra month compared to Zero IBT. For the two 10 MGD IBT scenarios, there was no predicted increase in the number of months of Stage 1 LIP occurrence. Occurrences of Stage 2 LIP or higher are the same for all scenarios. The table also compares the numbers of years with at least one month occurrence of the various LIP stages predicted under each of the scenarios. The table shows no differences between any of the scenarios.

**Table 1 - Summary of Catawba LIP Stages**

Model Scenario	Zero IBT		Avg 10 MGD IBT		Constant 10 MGD IBT		16 MGD Avg (26 MGD MDD) IBT	
LIP Stage	Months	% Time	Months	% Time	Months	% Time	Months	% Time
Monthly Summary								
-1	576	64%	574	64%	576	64%	576	64%
0	276	31%	278	31%	276	31%	275	31%
1	43	5%	43	5%	43	5%	44	5%
2	5	1%	5	1%	5	1%	5	1%
3	0	0%	0	0%	0	0%	0	0%
4	0	0%	0	0%	0	0%	0	0%
Annual Summary - Number of years with at least one month occurrence in the calendar year								
LIP Stage	Year	% Year	Year	% Year	Year	% Year	Year	% Year
-1	66	88%	66	88%	66	88%	66	88%
0	56	75%	56	75%	56	75%	56	75%
1	10	13%	10	13%	10	13%	10	13%
2	1	1%	1	1%	1	1%	1	1%
3	0	0%	0	0%	0	0%	0	0%
4	0	0%	0	0%	0	0%	0	0%

### ***Predicted Impacts – Lake Elevations and Outflows***

Predicted lake elevation and outflow profiles for Lake James and Lake Norman were compared across the IBT scenarios. The profiles are shown in time series over the entire 75-year record, as well as during critical low flow periods.

Figure 2 shows the simulated elevation profiles for Lake James over the entire 75-year record. Figure 3 shows the predicted elevation of Lake James during the 1990s low flow period. Figure 3 shows that the constant 10 MGD IBT curve is predicted to stay higher during July 1991. This higher predicted elevation of 9.22 inches for the constant 10 MGD IBT scenario compared to the 10 MGD ADD scenario occurred even with slightly higher withdrawals in summer months.

Figure 4 shows the simulated elevations for Lake James during the 2002 drought. Similar Lake James elevations were predicted for all IBT scenarios during the 2002 drought.

Figure 5 shows simulated elevations for Lake Norman over the entire 75-year record. Figure 6 shows the simulated elevations for Lake Norman during the 1980's drought. Figure 6 shows that the elevation for the constant 10 MGD IBT scenario was predicted to be slightly higher during the fall season of 1986 with about 3.2 inches maximum difference as compared to the average 10 MGD IBT scenario.

Lake elevation duration plots for Lakes James and Norman are shown in Figure 8 and Figure 9 respectively. The duration data are presented in Table 2 and Table 3. The differences are in hundredths of a foot and are not noticeable in the plots.

Figure 10, Figure 11, Table 4, and Table 5 contain the total outflow plots and data. They show no noticeable differences among the scenarios studied.

Figure 2 - Lake James Elevation Profiles

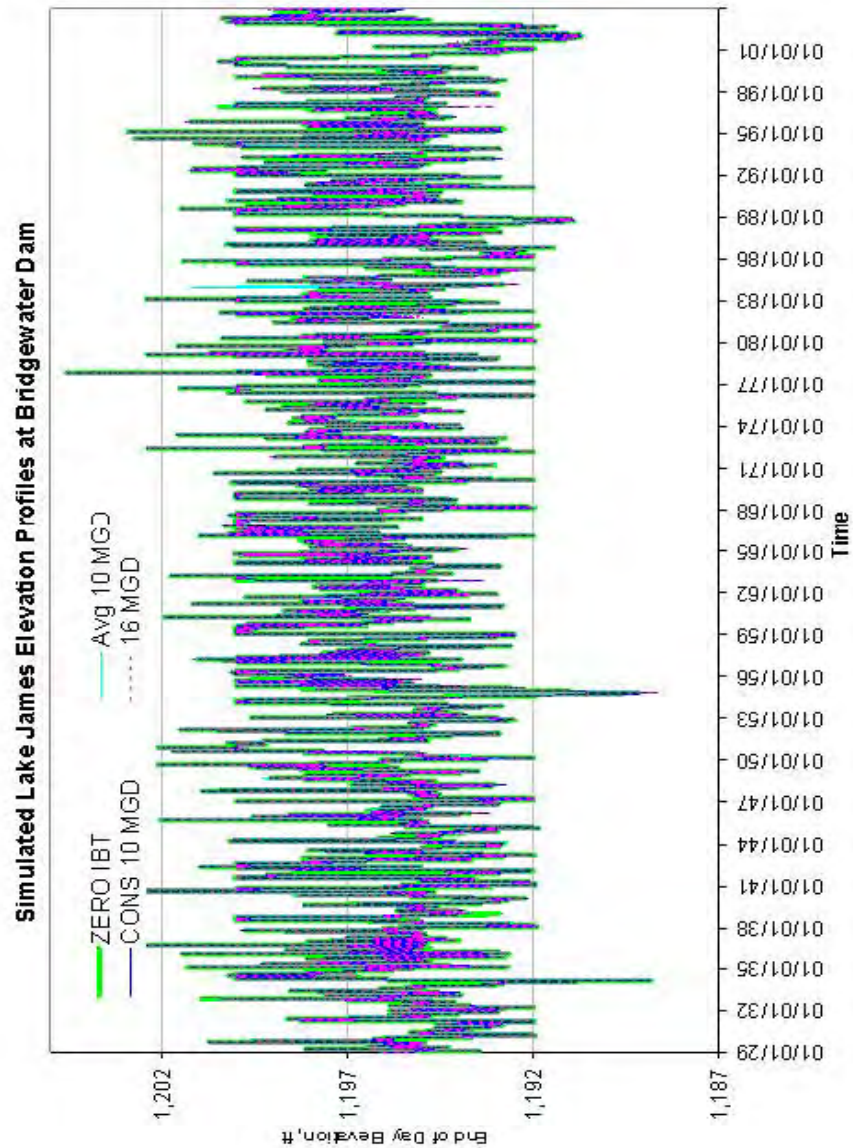
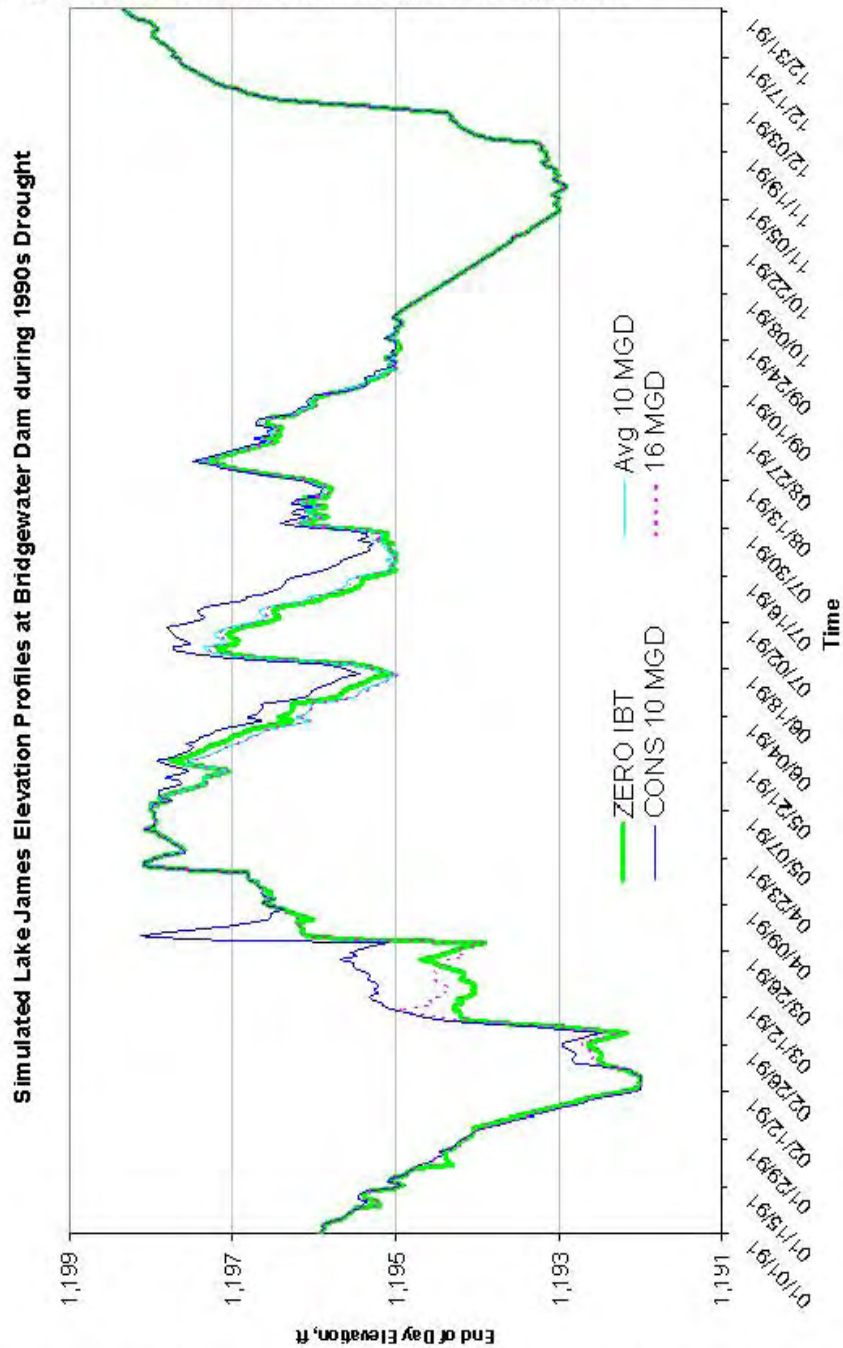




Figure 3 - Lake James Elevation Profiles during 1990s Dry Period



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Figure 4 - Lake James Elevation Profiles during 2002 Dry Period

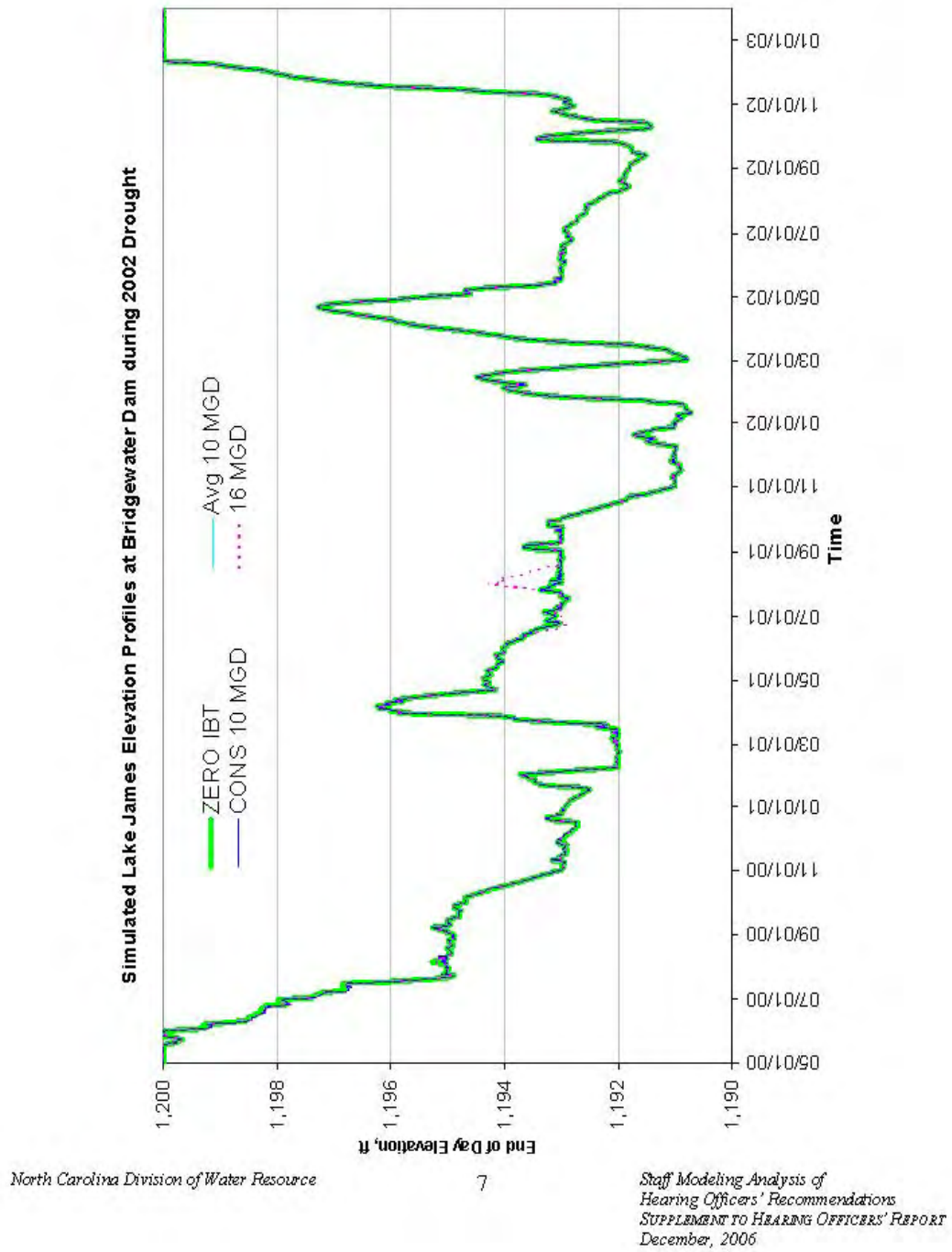
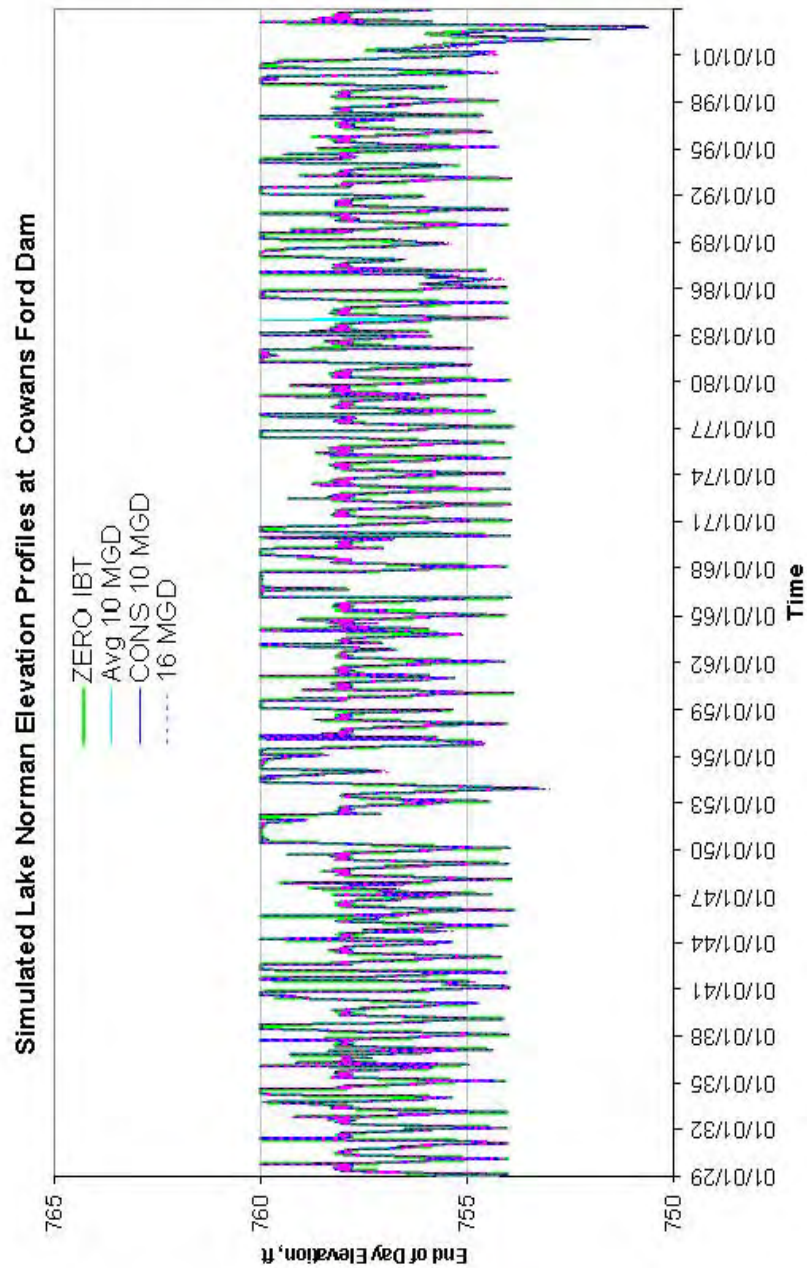


Figure 5 - Lake Norman Elevation Profiles



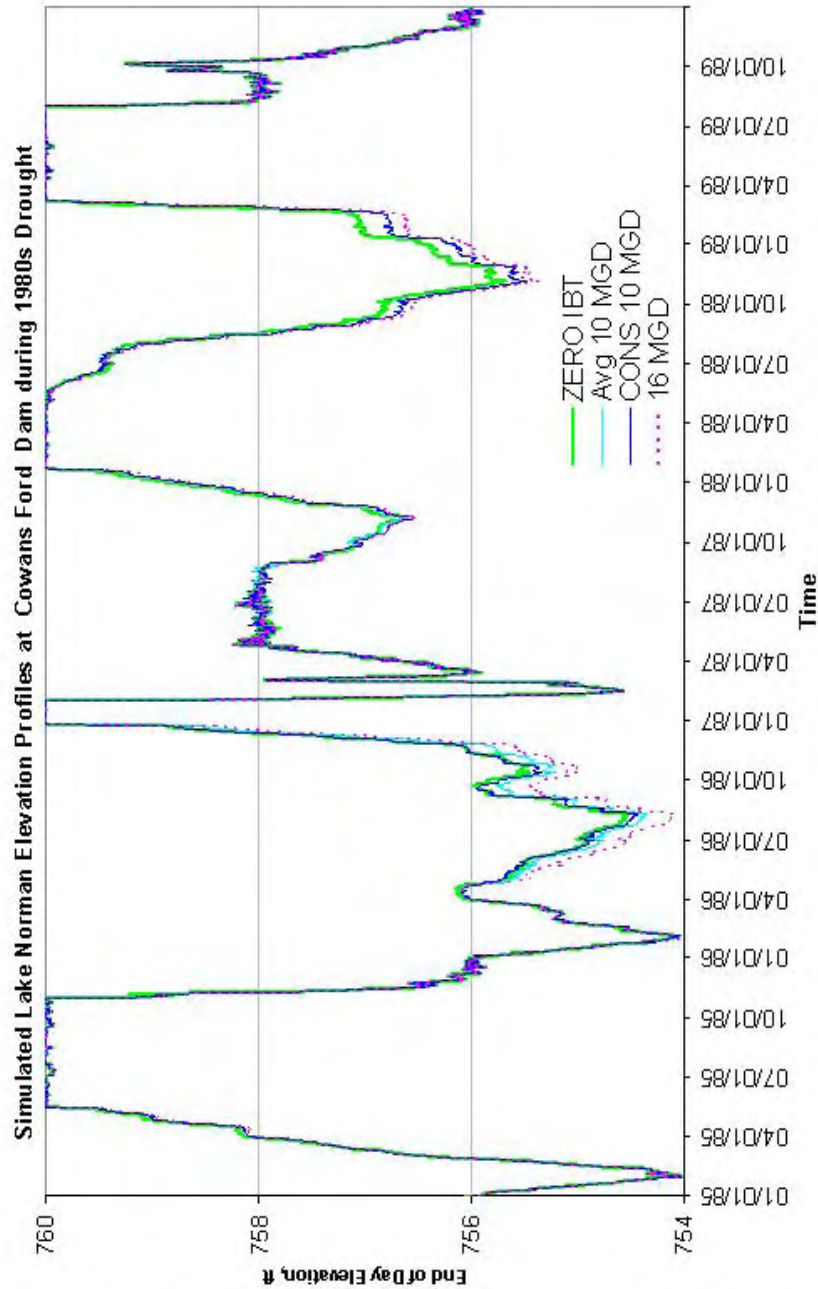
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Figure 6 - Lake Norman Elevation Profiles during 1980s Dry Period

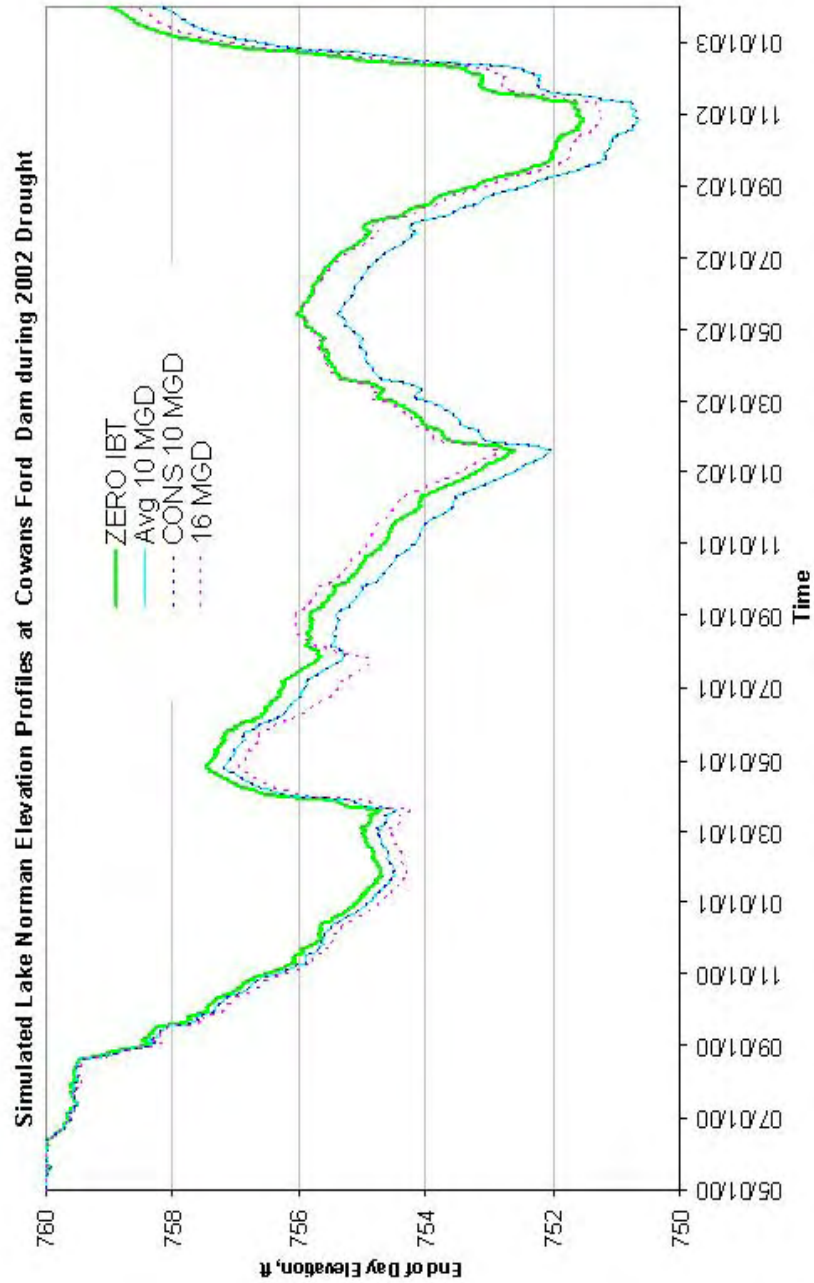


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Figure 7 - Lake Norman Elevation Profiles during 2002 Dry Period

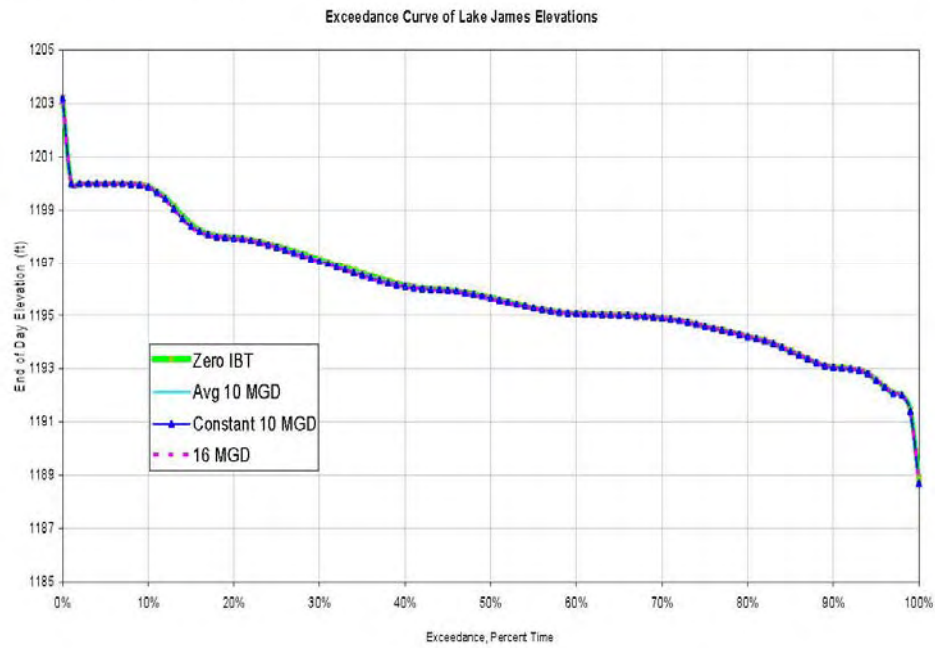


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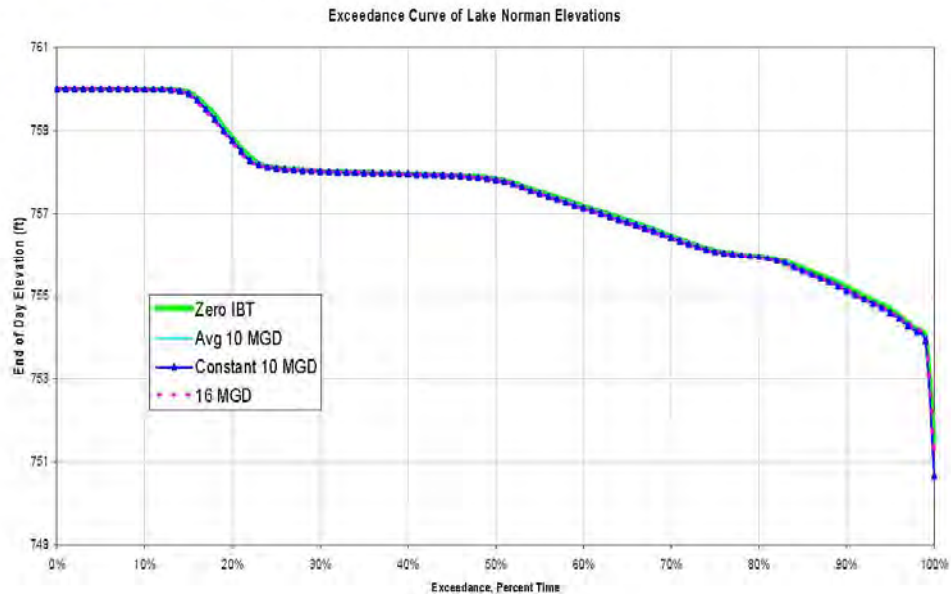
**Figure 8 - Lake James Elevation Duration Plot**



**Table 2 - Lake James Elevation Duration Data**

Model Scenario	Zero IBT	Average 10 MGD IBT	Constant 10 MGD IBT	16 MGD (26 MGD MDD) IBT
Exceedance, Percent Time	Elevation, FT	Elevation, FT	Elevation, FT	Elevation, FT
0%	1203.2	1203.2	1203.2	1203.2
10%	1199.88	1199.88	1199.87	1199.86
25%	1197.65	1197.64	1197.61	1197.59
50%	1195.67	1195.66	1195.65	1195.62
75%	1194.59	1194.59	1194.59	1194.59
90%	1193.05	1193.05	1193.05	1193.05
95%	1192.57	1192.57	1192.57	1192.58
99%	1192.01	1192.01	1192.01	1192.01
100%	1188.88	1188.77	1188.7	1188.68

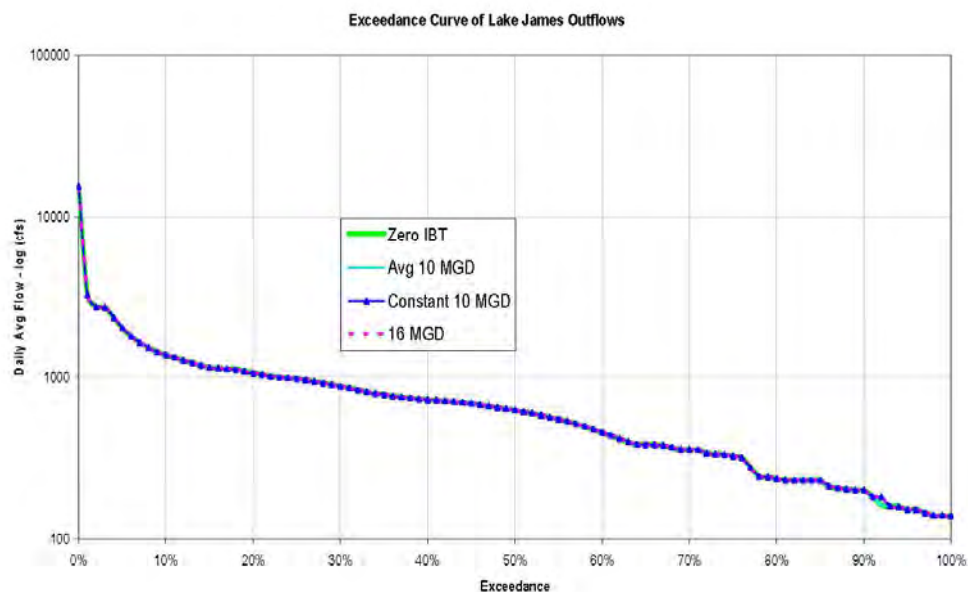
**Figure 9 - Lake Norman Elevation Duration Plot**



**Table 3 - Lake Norman Elevation Duration Data**

Model Scenario	Zero IBT	Average 10 MGD IBT	Constant 10 MGD IBT	16 MGD (26 MGD MDD) IBT
Exceedance, Percent Time	Elevation, FT	Elevation, FT	Elevation, FT	Elevation, FT
0%	760.00	760.00	760.00	760.00
10%	759.99	759.99	759.99	759.99
25%	758.10	758.09	758.09	758.09
50%	757.84	757.83	757.82	757.81
75%	756.11	756.09	756.08	756.08
90%	755.20	755.12	755.12	755.14
95%	754.67	754.58	754.58	754.58
99%	754.19	754.14	754.13	754.18
100%	751.53	750.65	750.65	751.22

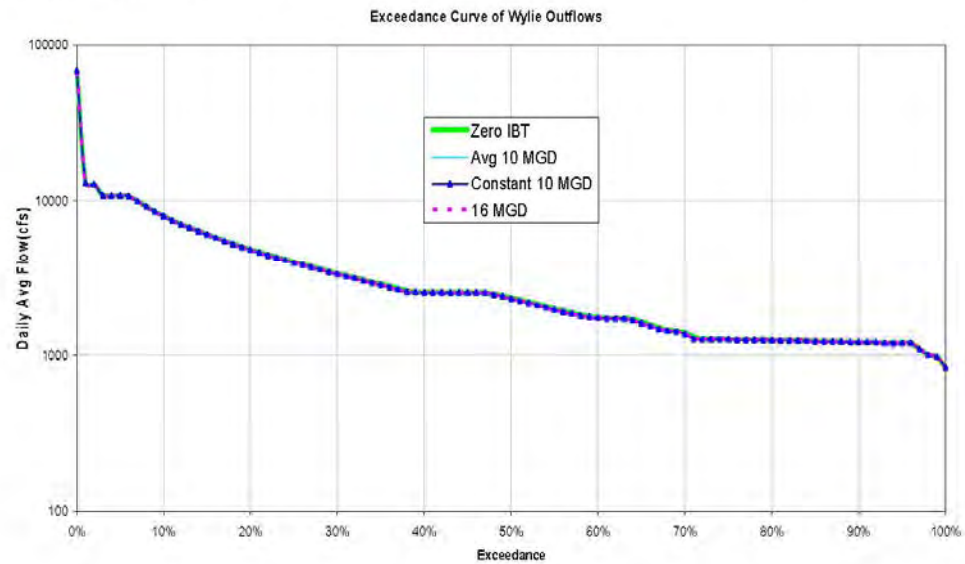
**Figure 10 - Lake James Outflow Duration Plot**



**Table 4 - Lake James Outflow Duration Data**

Model Scenario	Zero IBT	Average 10 MGD IBT	Constant 10 MGD IBT	16 MGD (26 MGD MDD) IBT
Exceedance, Percent Time	Outflow, cfs	Outflow, cfs	Outflow, cfs	Outflow, cfs
0%	15491	15491	15491	15491
10%	1384	1382	1384	1381
25%	986	985	984	985
50%	627	627	629	628
75%	327	327	327	327
90%	202	202	202	202
95%	159	159	159	159
99%	140	140	140	140
100%	139	139	139	139

**Figure 11 - Lake Wylie Outflow Duration Plot**



**Table 5 - Lake Wylie Outflow Duration Data**

Model Scenario	Zero IBT	Average 10 MGD IBT	Constant 10 MGD IBT	16 MGD (26 MGD MDD) IBT
Exceedance, Percent Time	Outflow, cfs	Outflow, cfs	Outflow, cfs	Outflow, cfs
0%	68400	68399	68399	68392
10%	8047	7997	8013	7965
25%	4027	3981	3989	3980
50%	2345	2321	2322	2314
75%	1271	1270	1270	1270
90%	1221	1221	1221	1221
95%	1205	1205	1205	1205
99%	1011	1011	1011	1011
100%	838	838	838	838

### ***Catawba River Basin Simplified Storage Analysis***

The following is a simplified storage impact analysis. For this analysis, a 10 MGD daily withdrawal is assumed to be distributed across Mountain Island Lake and the five upstream reservoirs on the Catawba River. The period June 1-November 30 (183 days) is typically the driest six-month period of the year. During this period, a 10 MGD withdrawal would require a total of 1830 million gallons (MG) for 183 days. The six reservoirs have a combined surface area of 48,741 acres when they are full. If there were no inflow to these lakes during the 183-day period, the drawdown due to the IBT is estimated to be 1.4 inches. If the reservoirs were initially at 50 percent of usable capacity, the drawdown is estimated to be 1.6 inches. These estimates must be considered as upper bounds on the expected lake elevation impact, as the lowest estimated inflow for that period over the 75 years of record is 358 MGD, over 35 times the amount of the IBT.



## YADKIN RIVER BASIN ANALYSIS

The Yadkin River Basin analysis includes a comparison of several 10 MGD MDD scenarios to a constant 10 MGD IBT scenario. All the modeling scenarios are described in more detail in the November 6, 2006 report *Simulation of the Proposed Concord-Kannapolis Interbasin Transfer from the Yadkin River Basin*, by the North Carolina Division of Water Resources.

The scenario “2035 No Transfer” scenario represents the best available estimate of the new 2035 water demand baseline conditions when the new Yadkin River Basin hydropower license takes effect. This scenario was selected as the base case for purposes of comparison. The “2035 No Transfer” is also included for the purpose of quantifying the incremental difference of the proposed IBT. The model scenarios analyzed are as follows:

- *Zero Yadkin Transfer conditions.*
  - “2035 No Transfer” – 2035 water use projections and no Yadkin interbasin transfer.
- *Maximum Daily Demand (MDD) Transfer conditions* (Based on applicant’s preferred alternative)
  - “Tuckertown 10 MGD MDD Transfer” – 2035 water use projections with the Concord Kannapolis 10 MGD maximum day IBT being supplied by the City of Albemarle from the Tuckertown Reservoir.
  - “Tuckertown-Salisbury 10 MGD MDD Transfer” – 2035 water use projections with the Concord Kannapolis 10 MGD maximum day IBT being supplied by the cities of Albemarle and Salisbury evenly supplied by the Tuckertown Reservoir and the City of Salisbury’s intake on the Yadkin River.
- *Constant Transfer conditions* (Worst case analysis under the hearing officer’s recommended alternative)
  - “Tuckertown 10 MGD Constant Transfer” – 2035 water use projections with the Concord Kannapolis 10 MGD constant day IBT being supplied by the City of Albemarle from the Tuckertown Reservoir.
  - “Tuckertown-Salisbury 10 MGD Constant Transfer” – 2035 water use projections with the Concord Kannapolis 10 MGD maximum day IBT being supplied by the cities of Albemarle and Salisbury evenly supplied by the Tuckertown Reservoir and the City of Salisbury’s intake on the Yadkin River.
- *2001-2002 Drought conditions*
  - “Tuckertown 10 MGD MDD Drought Transfer” – The 2008 water use projections are subtracted from the 2035 projections with the Concord Kannapolis 10 MGD maximum day IBT being supplied by the City of Albemarle from the Tuckertown Reservoir.
  - “Tuckertown 10 MGD Constant Drought Transfer” – The 2008 water use projections are subtracted from the 2035 projections with the Concord Kannapolis 10 MGD constant day IBT being supplied by the City of Albemarle from the Tuckertown Reservoir.



The results presented in this report focus on the key areas of:

- Elevation Duration Plots for High Rock Reservoir and Narrows (Badin) Reservoir
- Discharge Duration Plot for the Rockingham Gage
- Summary of LIP stages
- Elevation Plots for High Rock Reservoir and Narrows (Badin) Reservoir during the 2001-2002 drought

### ***Predicted Yadkin River Basin Impacts***

In the following impact discussion, all the differences are as compared to the “2035 No Transfer” base case scenario. A negative difference means, for example, that lake levels in the scenario being examined are lower than in the “2035 No Transfer” scenario.

Figure 12 and Figure 13 are the elevation duration plots for High Rock and Narrows (Badin) reservoirs. In both figures there are no noticeable differences as seen in Table 6 and Table 7. In most cases, the differences in elevations are in hundredths of a foot. The lowest lake levels for the 74 years of simulation show lake levels range from -0.2 to -0.5 feet.

Figure 14 and Table 8 show the discharge duration data for the Rockingham streamflow gage. For flows of less than the 75<sup>th</sup> percentiles, there are no noticeable differences. For flows greater than the 75<sup>th</sup> percentile, the differences range from the 0 to -22 cfs (0 to -0.4% difference).

Table 9 is a summary of the LIP stages for the Yadkin River Basin model scenarios. Figure 15 is the time series plot of the LIP stages. The greatest LIP impact occurs in “Tuckertown-Salisbury 10 MGD MDD Transfer” scenario, where there are 19 additional days of stage 3 water reductions that occur during one drought event in the 74 years simulated.

Figure 16, Figure 17, Figure 18, and Figure 19 show the lake levels for High Rock and Narrows (Badin) reservoirs during the 2001 to 2002 drought period. Even during this extreme drought, only minor differences in reservoir levels occurred as a result of the IBT for short periods of time.

Figure 12 - High Rock Reservoir Level Duration Plots

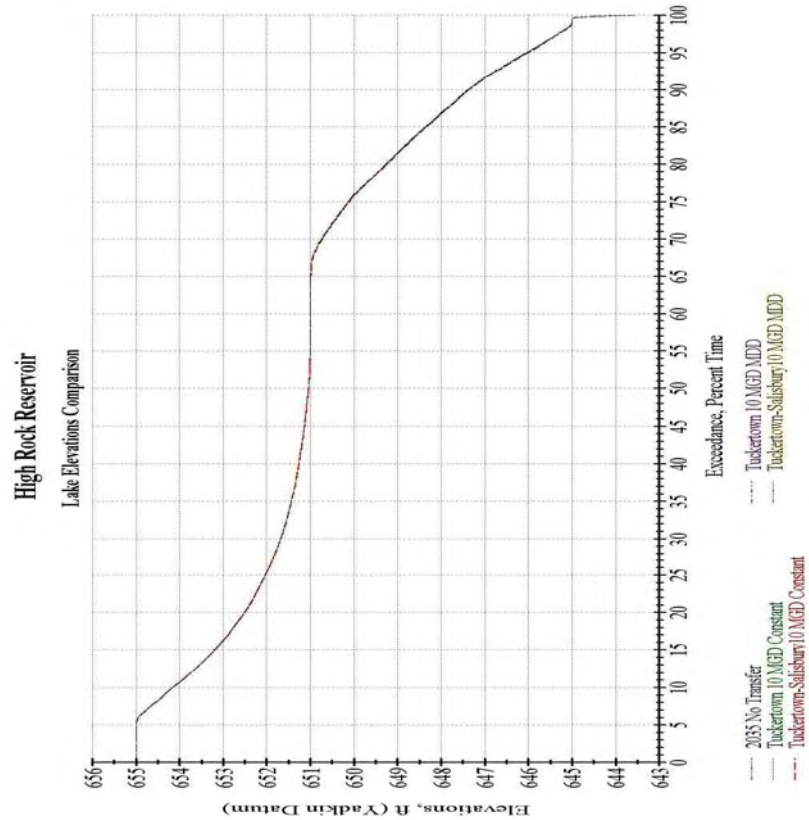
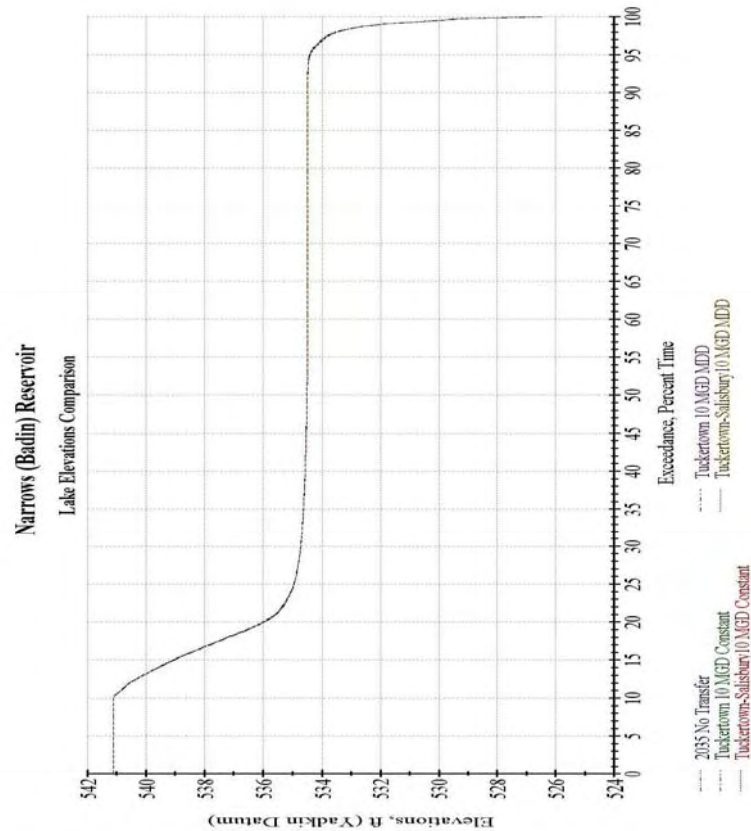


Table 6 - High Rock Elevation Durations Data

Model Scenario	2035 Zero Transfer	Tuckertown 10 MGD MDD Transfer	Tuckertown-Salisbury 10 MGD MDD Transfer	Tuckertown 10 MGD Constant Transfer	Tuckertown-Salisbury 10 MGD Constant Transfer
Exceedance, Percent Time	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft
0	655.00	655.00	655.00	655.00	655.00
10	654.17	654.16	654.16	654.16	654.16
25	652.04	652.03	652.04	652.03	652.03
50	651.05	651.05	651.05	651.04	651.04
75	650.13	650.12	650.12	650.12	650.10
95	646.04	646.02	646.01	646.02	646.00
99	645.00	645.00	645.00	645.00	645.00
100	644.03	643.78	643.73	643.61	643.54

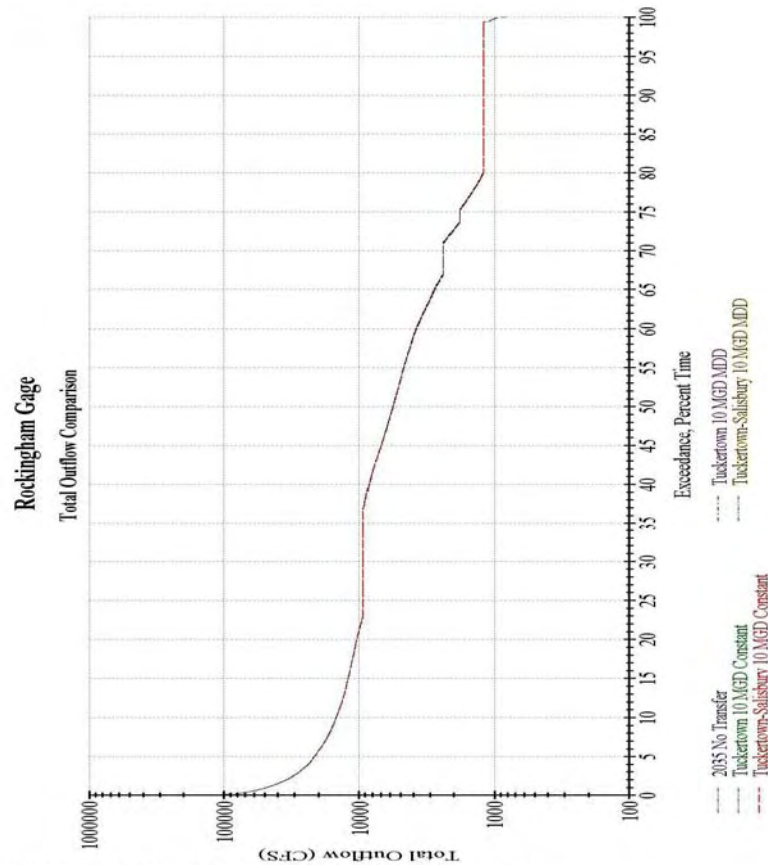
**Figure 13 - Narrows (Badin) Reservoir Level Duration Plots**



**Table 7 - Narrows (Badin) Elevation Durations Data**

Model Scenario	2035 Zero Transfer	Tuckertown 10 MGD MDD Transfer	Tuckertown-Salisbury 10 MGD MDD Transfer	Tuckertown 10 MGD Constant Transfer	Tuckertown-Salisbury 10 MGD Constant Transfer
Exceedance, Percent Time	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft	Yadkin Datum, ft
0	541.10	541.10	541.10	541.10	541.10
10	541.10	541.10	541.10	541.10	541.10
25	534.96	534.95	534.96	534.95	534.95
50	534.51	534.51	534.51	534.51	534.51
75	534.50	534.50	534.50	534.50	534.50
95	534.42	534.40	534.41	534.40	534.40
99	532.04	531.97	531.97	531.93	531.94
100	526.78	526.52	526.57	526.39	526.47

**Figure 14 - Rockingham Streamflow Gage Flow Duration Plots**



**Table 8 - Rockingham Streamflow Gage Flow Duration Data**

Model Scenario	2035 Zero Transfer	Tuckertown 10 MGD MDD Transfer	Tuckertown-Salisbury 10 MGD MDD Transfer	Tuckertown 10 MGD Constant Transfer	Tuckertown-Salisbury 10 MGD Constant Transfer
Exceedance, Percent Time	Discharge, cfs	Discharge, cfs	Discharge, cfs	Discharge, cfs	Discharge, cfs
0	105,844	105,660	105,664	105,660	105,528
10	14,780	14,771	14,771	14,771	14,765
25	9,400	9,400	9,400	9,400	9,400
50	5,666	5,653	5,662	5,653	5,644
75	1,800	1,800	1,800	1,800	1,800
95	1,200	1,200	1,200	1,200	1,200
99	1,200	1,200	1,200	1,200	1,200
100	809	809	809	809	809

**Table 9 - Summary of Yadkin Low Inflow Protocol (LIP) Stages**

Model Scenario	2035 No Transfer		Tuckertown 10 MGD MDD Transfer		Tuckertown-Salisbury 10 MGD MDD Transfer		Tuckertown 10 MGD Constant Transfer		Tuckertown-Salisbury 10 MGD Constant Transfer	
LIP Stage	Days	% Time	Days	% Time	Days	% Time	Days	% Time	Days	% Time
<b>Monthly Summary</b>										
-1	26,004	96.2%	26,004	96.2%	25,986	96.1%	26,000	96.2%	25,985	96.1%
0	791	2.9%	791	2.9%	809	3.0%	794	2.9%	810	3.0%
1	92	0.3%	92	0.3%	92	0.3%	92	0.3%	92	0.3%
2	49	0.2%	49	0.2%	49	0.2%	50	0.2%	30	0.1%
3	92	0.3%	92	0.3%	92	0.3%	92	0.3%	111	0.4%
4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LIP Stage	Years	% Years	Years	% Years	Years	% Years	Years	% Years	Years	% Years
<b>Annual Summary - Number of years with at least month occurrence in the calendar year.</b>										
-1	74	100.0%	74	100.0%	74	100.0%	74	100.0%	74	100.0%
0	19	25.7%	19	25.7%	19	25.7%	19	25.7%	19	25.7%
1	3	4.1%	3	4.1%	3	4.1%	3	4.1%	3	4.1%
2	1	1.4%	1	1.4%	1	1.4%	1	1.4%	1	1.4%
3	1	1.4%	1	1.4%	1	1.4%	1	1.4%	1	1.4%
4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Figure 15 - Yadkin Simulated LIP Stages

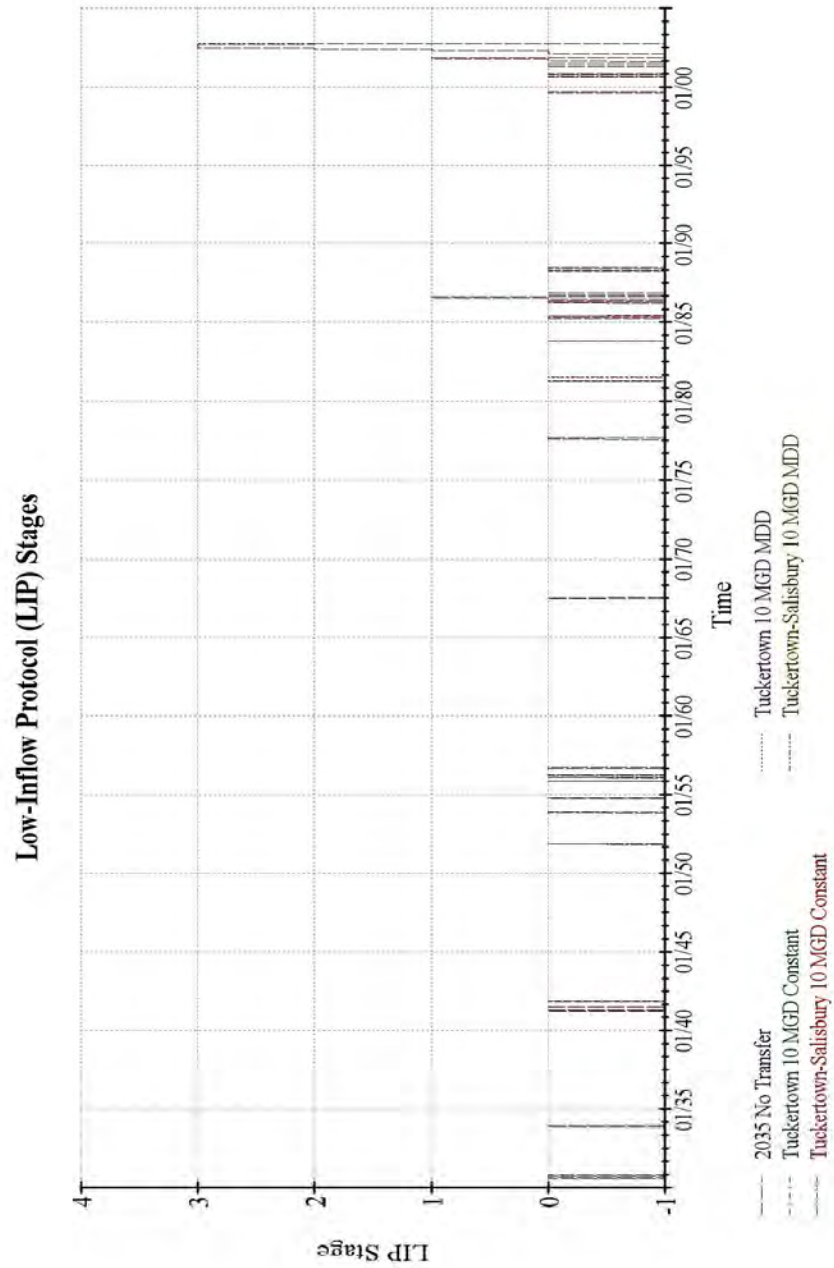




Figure 16 - High Rock 10 MGD MDD Lake Levels

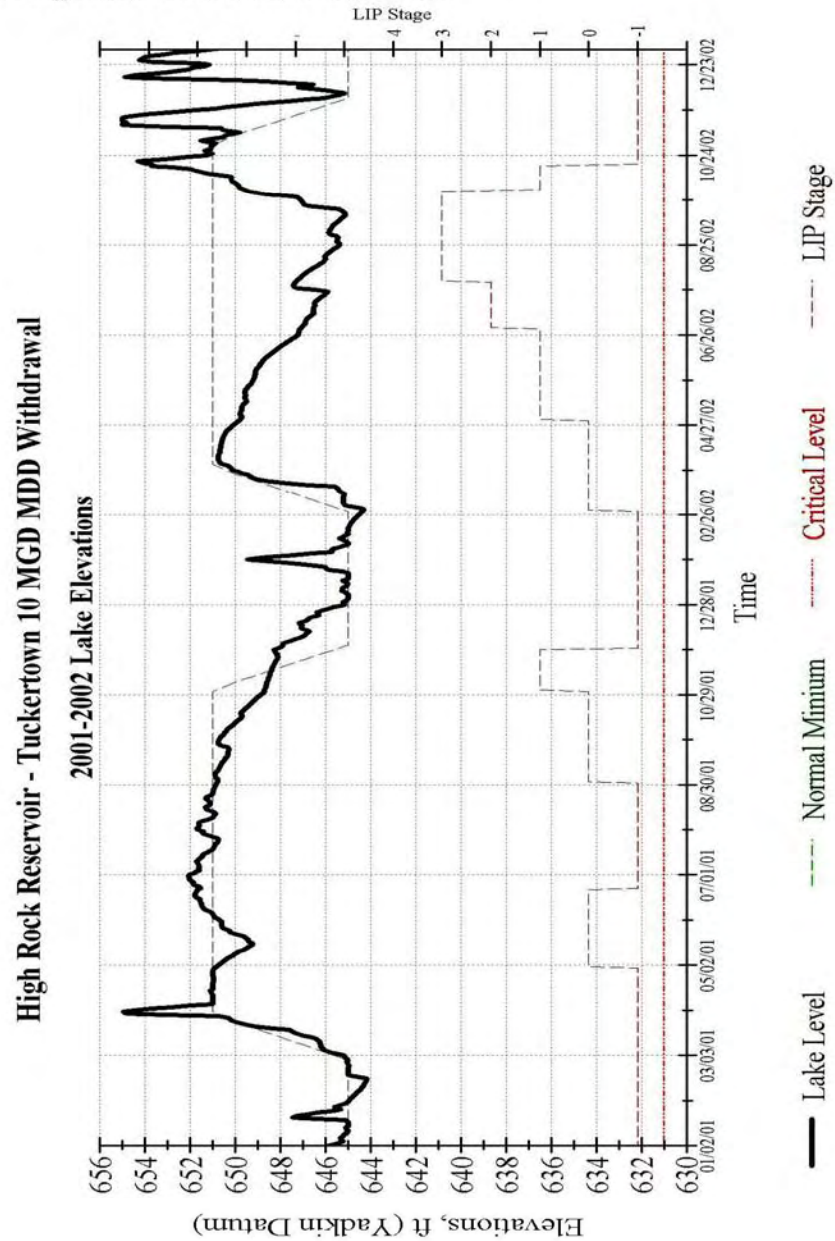


Figure 17 - High Rock 10 MGD Constant Lake Levels

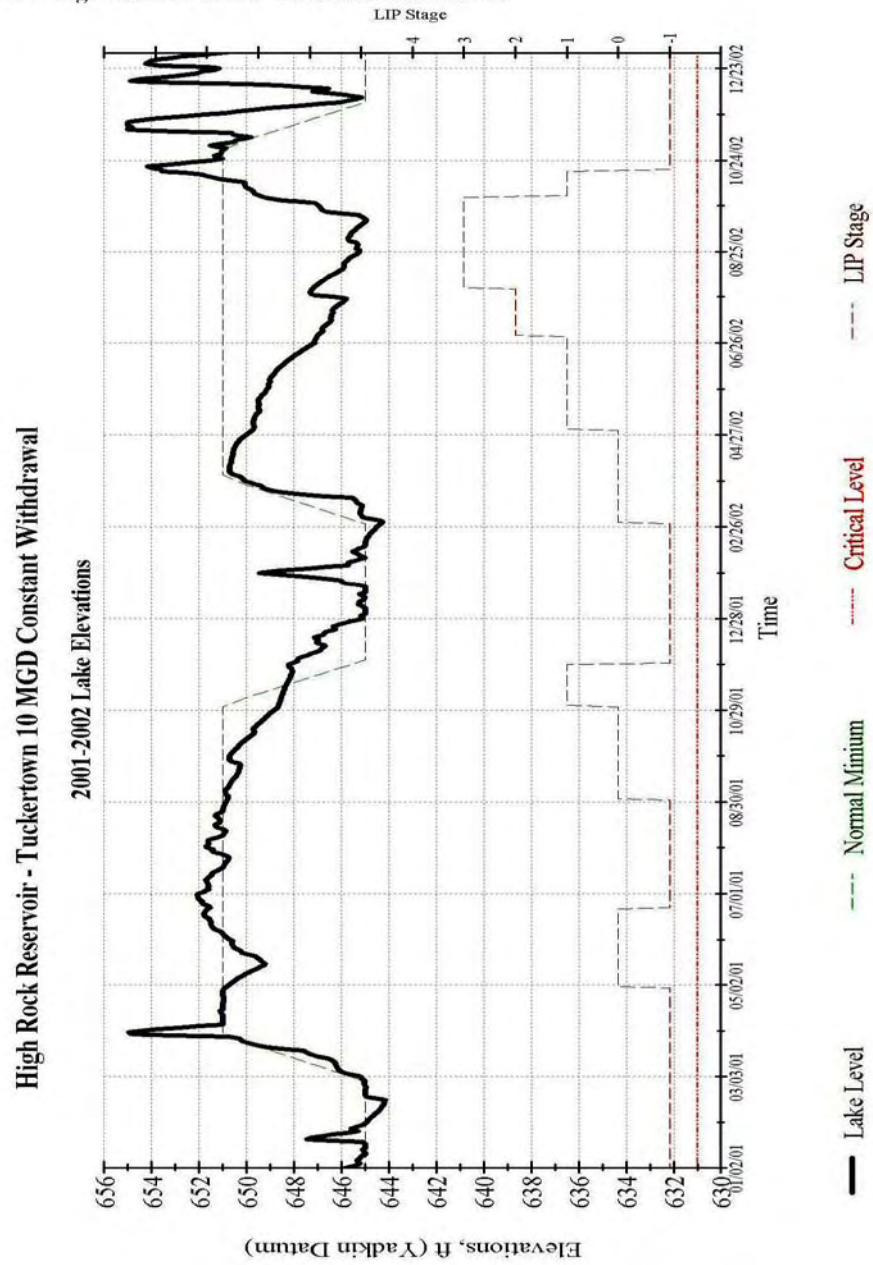




Figure 18 - Narrows (Badin) 10 MGD MDD 2001-02 Lake Levels

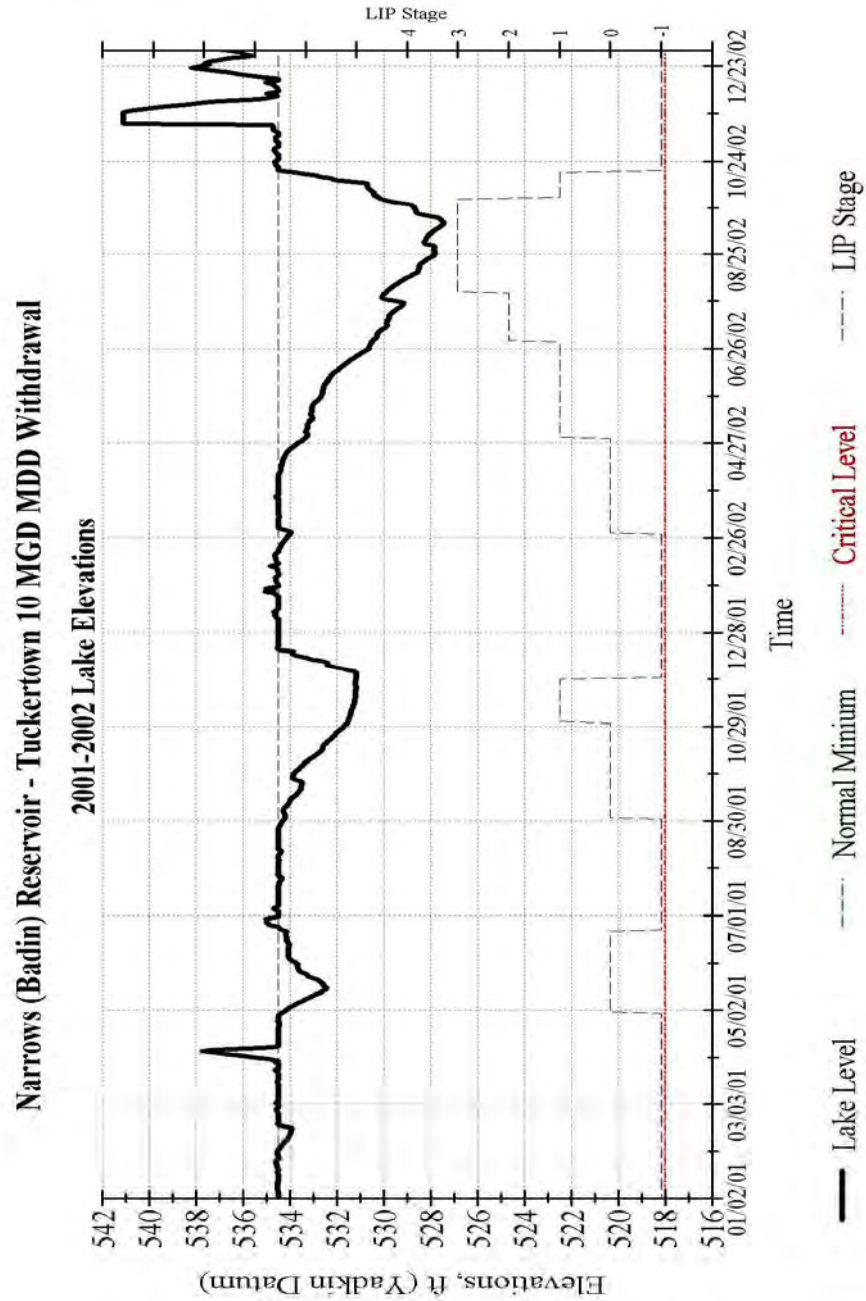
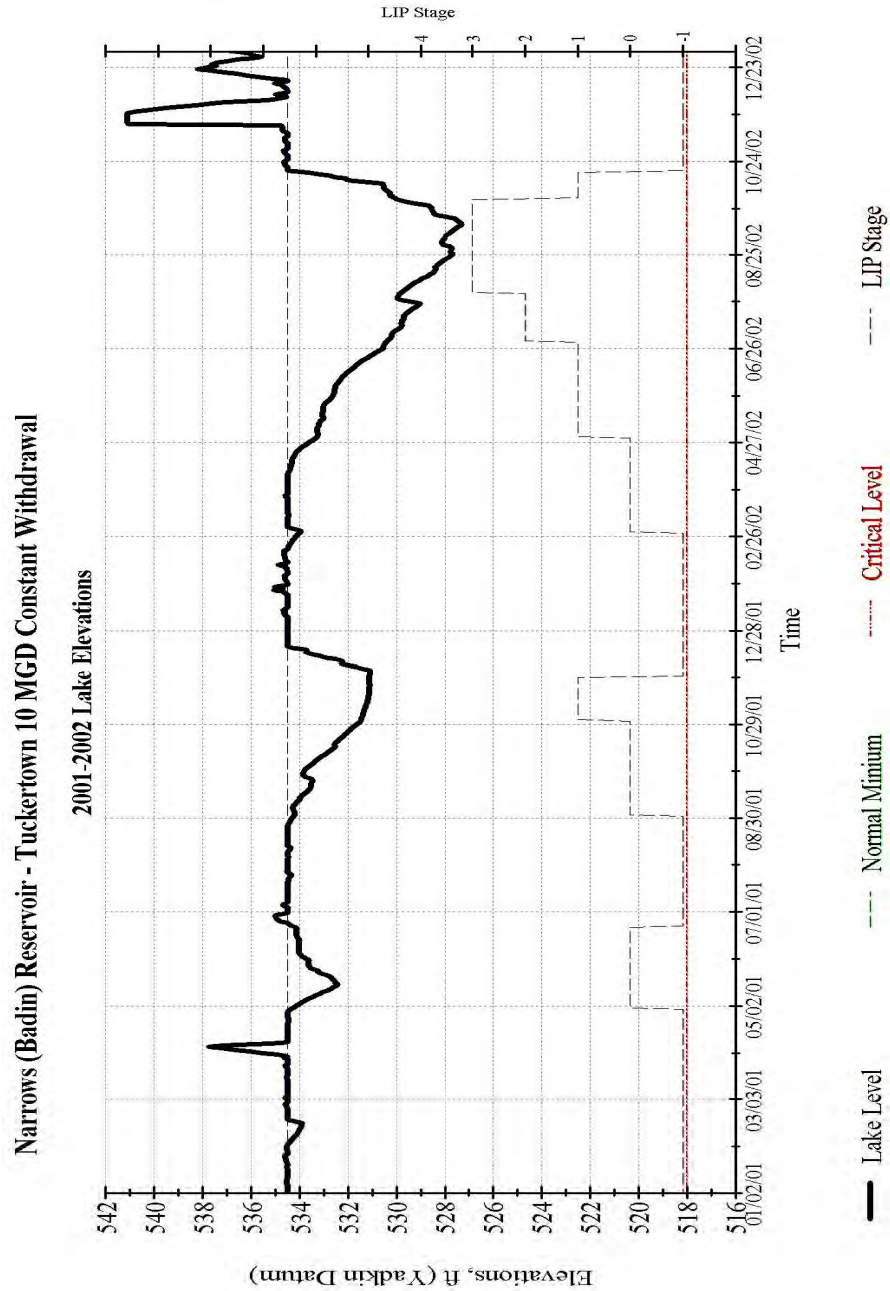


Figure 19 - Narrows (Badin) 10 MGD Constant 2001-02 Lake Levels



### ***Yadkin River Basin Simplified Storage Analysis***

The following is a simplified storage impact analysis of a constant 10 MGD withdrawal on High Rock, Baden, and Tillery Reservoirs on the Yadkin River. The period June 1-November 30 (183 days) is typically the driest six-month period of the year. A 10 MGD withdrawal would require a total of 1830 million gallons (MG) for 183 days. The combined surface area of High Rock, Baden, and Tillery Reservoirs is 25,400 acres. A transfer of 1830 MG without any inflow would result in an estimated drawdown of 2.7 inches. If the reservoirs were at 50-percent capacity, the drawdown due to the IBT would have an estimated upper bound of 3.8 inches. In actuality, inflow during that period is not likely to be zero. The lowest inflow to High Rock during June 1-November 30 over 67 years of record is 642 MGD, over 60 times the IBT amount.

## **ANALYSIS OF STREAMFLOW**

### ***Catawba River Basin Streamflow Analysis***

Gages operated by the United States Geological Survey on the Catawba River below Lake James and above Rock Hill, SC generally have a limited historical period of record. The only long-term gage on tributaries between Lake James and Mountain Island Dam covers a drainage area of only 28 square miles. There is a long-term record of flows at Rock Hill, but it includes effects of upstream regulation.

A representative set of unregulated streamflows at Mountain Island can be constructed using a weighted combination of gages above Lake James and in the nearby South Fork Catawba Basin. Weights assigned to the various gages are proportional to drainage areas that they are used to represent. These flows are referred to as the “estimated” flows. They are estimated using:

- A combined record on the Catawba River at Marion, NC and Pleasant Garden, NC.
- The gage on Henry Fork, less than five miles from the Catawba River near Hickory, and
- The South Fork gage at Lowell which is 6-8 miles from Mountain Island Dam.

None of these gages are subject to upstream regulation. There are unregulated mill dams upstream.

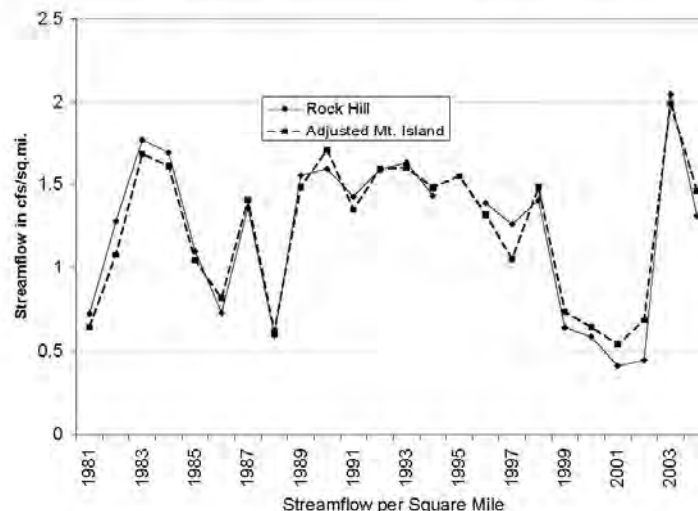
Because of deficiencies in historical stream gage data, it is not possible to compare the estimated flows at Mountain Island with actual flows. One estimation method is to compare values of estimated flows with similar flows in the Catawba at Rock Hill after each of the records has been standardized by dividing by the respective drainage areas. Estimated flows at Mountain Island without any adjustment are higher than these flows. Some of that difference is to be expected because flows based on tributary flows do not include losses due to evaporation and diversion. Another difference is that estimated flows are unregulated while apportioned flows are regulated (there should not be great differences there when flows are compared on an annual basis). Other differences may arise from either estimation formula.

To correct for the differences, flows over the period 1981-2004 were adjusted by the ratio of the 24-year total of estimated Mountain Island flows and a similar total of measured flows at Rock Hill. Figure 20 shows the relationship between annual flows at Rock Hill and adjusted estimated flows at Mountain Island. There is close agreement among these values. Figure 21 shows the relationship between monthly flows at Rock Hill and adjusted estimated monthly flows at Mountain Island. Some scatter about the one-to-one line on the graph is expected because the flows at Mountain Island are unregulated and the flows at Rock Hill are regulated. Some of the scatter may also reflect effects of the estimation technique.

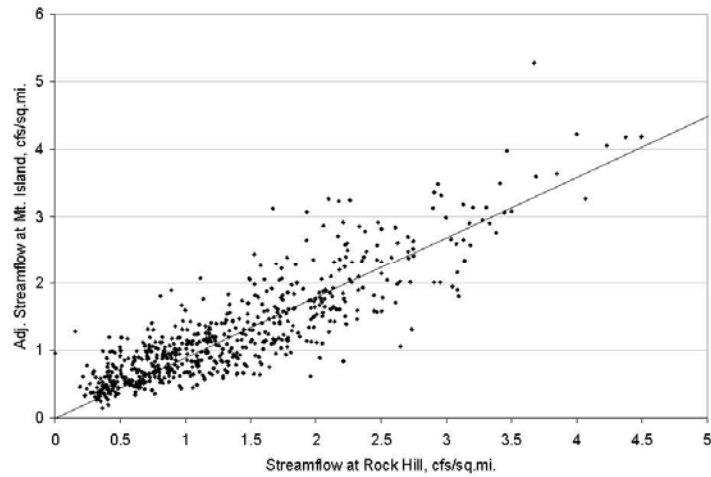
Effects of the 44 MGD diversion from Mountain Island are shown in two figures, one for annual flows and one for monthly flows. Effects on annual flows are shown in Figure 22. From 1999 through 2002 the diversion would have exceeded five percent. In 2002 it would have reached about seven percent.

Figure 4 shows effects on monthly flows. In July and August 2002, the diversion would have amounted to about 19 and 25 percent of the flow at Mountain Island. It would have routinely reached 10 percent in other years of the record.

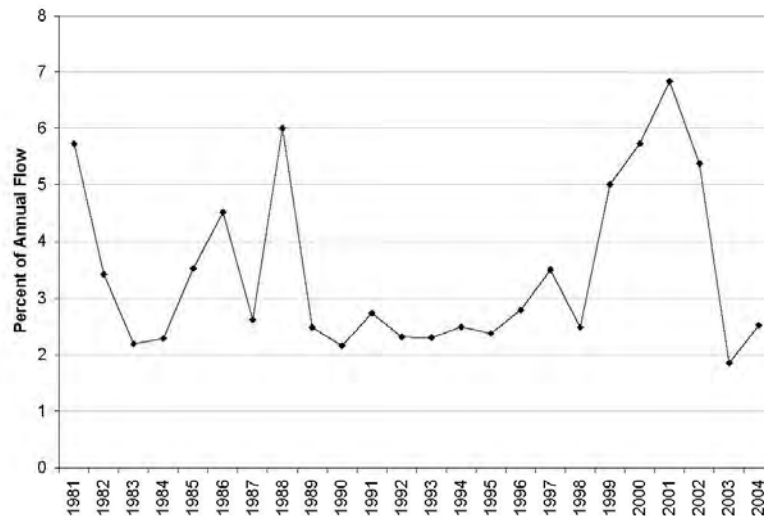
**Figure 20 - Comparison of Adjusted Mountain Island and Rock Hill Annual Streamflow 1981-2004**



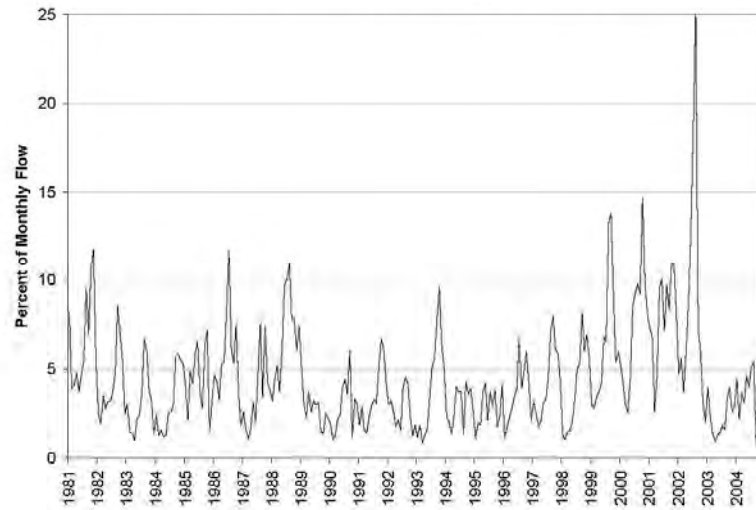
**Figure 21 -Comparison of Adjusted Monthly Streamflow at Mountain Island and Rock Hill**



**Figure 22 - Withdrawal of 44 MGD as a Percent of Annual Flow at Mountain Island**



**Figure 23 - Diversion of 44 MGD as a Percent of Monthly Flow at Mountain Island Dam**



### ***Yadkin River Basin Streamflow Analysis***

The purpose of this analysis is to evaluate techniques for adjusting streamflow records in the Yadkin River Basin to eliminate some effects of upstream regulation. The first analysis is to estimate average streamflow per square miles of drainage area at several streamflow gages over the common period of April, 1964 through September, 2005.

Mean flows per square mile of drainage area:

- Yadkin River at Elkin = 1.562 cfs/mi<sup>2</sup>
- Yadkin River at Yadkin College = 1.342 cfs/mi<sup>2</sup>
- South Yadkin River at Mocksville = 1.133 cfs/mi<sup>2</sup>
- Rocky River at Norwood = 1.024 cfs/mi<sup>2</sup>
- Pee Dee River at Rockingham = 1.182 cfs/mi<sup>2</sup>

Correlation coefficients:

1.  $(Q_{\text{Yadkin River at Yadkin College}} - Q_{\text{Yadkin River at Elkin}})$  and  $Q_{\text{South Yadkin}} = 0.909$   
Yadkin River at Yadkin College less Yadkin River at Elkin eliminates effect of regulation from Kerr Scott Reservoir.
2.  $Q_{\text{Rocky River at Norwood}}$  and  $Q_{\text{South Yadkin River at Mocksville}} = 0.782$

Other observations:

- The South Yadkin River has lower low flows per square mile than the Rocky River.
- The Pee Dee River at Rockingham adjusted for Yadkin River at Yadkin College and the Rocky River at Norwood has higher low flows per square mile than the Rocky River. A likely reflection of the regulated low flows in the lower Yadkin Basin caused by the releases from Blewett Falls Reservoir. The Rocky River could be used to simulate lower Yadkin Basin flows.
- $Q_{\text{Yadkin River at Yadkin College}} - Q_{\text{Yadkin River at Elkin}}$  or  $Q_{\text{Yadkin River at Yadkin College}} - Q_{\text{Yadkin River at Wilkesboro}}$ , if adjusted for drainage areas, gives estimates of unregulated flows at the Yadkin River at Yadkin College. The second of these two choices gives a better estimate because it covers a larger portion of the drainage area. That difference adjusted for drainage area above High Rock Reservoir can be used to estimate inflow into High Rock from the Yadkin Basin. To that is added the inflow in the South Yadkin at Mocksville and this is adjusted for the drainage area of the full basin.

A comparison of adjusted and unadjusted flows in the Yadkin River at Yadkin College for the period of October 1938 through September 2005 (67 water years) is shown that adjusted flows are slightly less than unadjusted flows. That is to be expected since unadjusted flows include effects of low flow augmentation. Regulation effects have been eliminated in adjusted flows.

Estimated inflows into High Rock Reservoir were computed as follows:

$$Q_{\text{High Rock}} = [3025/(2280-504)] * (Q_{\text{Yadkin River at Yadkin College}} - Q_{\text{Yadkin River at Wilkesboro}}) + (915/306) * Q_{\text{South Yadkin}}$$

The Yadkin Basin drainage area that contributes to High Rock is 3025 square miles, 2280 square miles at Yadkin College, and 504 square miles at Wilkesboro. The drainage area of the South Yadkin at Mocksville is 306 square miles, and the tributary area to High Rock is 925 square miles.

The lowest monthly flow in 67 years was 447 cfs or 289 MGD that occurred in August 2002 (1.5 percentile). The second lowest value is 746 cfs or 481 MGD in July 1953 (3.0 percentile).



## ***Attachment C –Notice of Public Hearings and Public Meetings***

### **Notice of Public Hearings**



North Carolina Department of Environment and Natural Resources  
Division of Water Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

John N. Morris, Director

### **Cities of Concord and Kannapolis Proposed Interbasin Transfer**

#### **NOTICE OF PUBLIC HEARINGS**

**June 22, 2005, 5:00 PM**

McKnight Auditorium in the Cone Center, Third Floor  
UNC-Charlotte

**June 23, 2005, 5:00 PM**

Albemarle City Hall Annex  
157 N. Second Street  
Albemarle, NC 28001

The North Carolina Environmental Management Commission will hold two public hearings to receive comments on a petition for an interbasin transfer from the Catawba River and Yadkin River Sub-Basins to the Rocky River Sub-Basin. The Cities of Concord and Kannapolis are requesting an interbasin transfer (IBT) certificate from the North Carolina Environmental Management Commission for a total transfer of 48 million gallons per day (MGD) on a maximum day basis. The maximum day IBT under the proposal would be up to 38 MGD from the Catawba River Sub-Basin and up to 10 MGD from the Yadkin River Sub-Basin.

Under the proposal, the applicants would meet short-term water supply demand increases using interconnections with Charlotte (Catawba), Salisbury (Yadkin), and Albemarle (Yadkin). Long-term demands would be met by developing a raw water supply from Lake Norman (Catawba) to supplement flows to Lake Howell and Kannapolis Lake. IBT occurs because of consumptive use in and discharge to the Rocky River Sub-Basin via the Water and Sewer Authority of Cabarrus County's Rocky River Regional Wastewater Treatment Plant. The IBT certificate is being requested to meet a projected cumulative water demand shortfall of 24 MGD (average day demand) in 2035.

Notice of these hearings is given in accordance with N.C. General Statute 143-215.221(d). The first public hearing will start at 5:00 PM on June 22, 2005 on the Third Floor of McKnight Auditorium on the campus of the University of North Carolina at Charlotte, Charlotte, NC. The second hearing will begin at 5:00 PM on June 23, 2005 in the Albemarle City Hall Annex, Albemarle, NC. In addition, Division of Water Resources (DWR) staff will be available to answer questions from 4:00 – 5:00 PM at the hearing locations. The public may inspect the staff's recommendation report, the interbasin transfer petition, and the draft Environmental Impact Statement (EIS) supporting the petition during normal business hours at the offices of DWR, 512 N. Salisbury Street, Room 1106, Archdale Building, Raleigh. These documents may also be viewed at the DWR web site:

[http://www.ncwater.org/Permits\\_and\\_Registration/Interbasin\\_Transfer/Status/Concord/](http://www.ncwater.org/Permits_and_Registration/Interbasin_Transfer/Status/Concord/)

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According to the draft EIS, there are no expected significant direct impacts in either the Catawba River or Yadkin River Sub-Basins. No significant changes are predicted in lake levels, downstream flows, or water supply withdrawals. Direct impacts on water supply, water quality, wastewater assimilation, fish and wildlife resources, navigation, or recreation are not expected since there will be no significant changes in the hydrology of the system due to the increased withdrawal. There is some potential for loss of power generation capacity in the Yadkin Sub-basin.

The draft EIS concludes that there are no secondary impacts related to growth in either of the source basins. However, the IBT will provide additional water supply to support growth and development in the receiving basin. Mitigation measures presented in the IBT petition are expected to mitigate secondary impacts related to growth and development in the receiving basin.

The draft EIS was circulated among agencies of the Department of Environment and Natural Resources. The Division of Water Quality, Natural Heritage Program, and the Wildlife Resources Commission were the primary commenting agencies. Their comments included concerns concentrated on secondary and cumulative impacts in the receiving basin on aquatic habitat and water quality. Suggested mitigation measures were specified, such as stream buffers and development ordinances, including low impact development measures.

The purpose of this announcement is to encourage those interested in this matter to provide comments and to comply with statutory notice requirements. You may attend either of the public hearings and make relevant oral comments and/or submit written comments, data, or other relevant information. Written submissions of oral comments at the hearings are requested. The hearing officers may limit the length of oral presentations if many people want to speak. If you are unable to attend, written comments can be mailed to Phil Fragapane, Division of Water Resources, DENR, 1611 Mail Service Center, Raleigh, NC 27699-1611. Comments may also be submitted electronically to [Phil.Fragapane@ncmail.net](mailto:Phil.Fragapane@ncmail.net). All comments must be received before July 1, 2005. Oral, mailed, and emailed comments will be given equal weight.

Under the Regulation of Surface Water Transfers Act (G.S. 143-215.22I), persons intending to transfer 2.0 mgd or more, or increase an existing transfer by 25 percent or more, must first obtain a certificate from the Environmental Management Commission. As part of the petition process, the applicants completed an environmental impact statement. Review of the environmental impact statement by the Department of Environment and Natural Resources has been completed in accordance with the State Environmental Policy Act.

*The public is invited to comment on the applicants' petition and supporting environmental impact statement.* The Commission is considering and seeking comments on three options with regard to the interbasin transfer request. The options are: (a) grant the certificate for the interbasin transfer request; (b) deny the interbasin transfer request; or (c) grant the certificate including any conditions necessary to achieve the purposes of the statute or to provide mitigation measures.

The public is invited to comment on the following possible conditions and to suggest any other appropriate conditions, including limitations on the amount of the transfer:

1. The Cities of Concord and Kannapolis will enact the following buffer definitions as part of the Unified Development Ordinance (UDO):
  - A perennial stream buffer shall be an undisturbed area measured, at minimum, 50 feet from the top of stream bank plus 20 feet of vegetated setback, totaling 70 feet
  - An intermittent stream buffer shall be an undisturbed area measured from the top of stream bank perpendicularly for a distance of 20 feet with an additional 10 feet of vegetated setback, totaling 30 feetThe UDO shall require that within stream buffer areas, the following regulations will apply:
  - No new on-site sewage systems utilizing ground adsorption
  - No new structures
  - Maintenance of stream buffers to maintain sheet flow and provide for diffusion and infiltration of runoff and filtering of pollutants
2. All municipalities and counties receiving water and/or sewer services from the Cities of Concord and/or Kannapolis shall comply with the UDO, including the stream buffer requirements. Municipalities and counties potentially affected include Harrisburg, Landis, Midland, Mount Pleasant, and Cabarrus County.
3. Prior to transferring water under the proposed IBT certificate, the holders of the certificate will work with the Division of Water Resources to develop a compliance and monitoring plan subject to approval by the Division. The plan will include methodologies and reporting schedules for reporting the following information: maximum daily transfer amounts, compliance with permit conditions, progress on mitigation measures, and drought management. A copy of the approved plan will be kept on file with the Division for public inspection. The Division of Water Resources will have the authority to make modification to the compliance and monitoring plan as necessary to assess compliance with the certificate.
4. If either the EIS were to be found at a later date to be incorrect or new information were to become available such that the environmental impacts associated with the proposed transfer were substantially different from the projected impacts that formed the basis for certifying the IBT, the Environmental Management Commission can reopen the certificate to adjust the conditions or to require new conditions to ensure that the detriments of the transfer continue to be mitigated to a reasonable degree.

For more information or to download the EIS supporting this IBT request, visit the Division of Water Resources' website at

[http://www.ncwater.org/Permits\\_and\\_Registration/Interbasin\\_Transfer/Status/Concord/](http://www.ncwater.org/Permits_and_Registration/Interbasin_Transfer/Status/Concord/)

You may also contact Phil Fragapane in the Division of Water Resources at 919-715-0389, or email: [Phil.Fragapane@ncmail.net](mailto:Phil.Fragapane@ncmail.net)

## Notice of Public Meeting – September 7, 2006



North Carolina Department of Environment and Natural Resources  
Division of Water Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary  
John N. Morris, Director

### **Cities of Concord and Kannapolis Proposed Interbasin Transfer**

#### **NOTICE OF PUBLIC MEETING**

**September 7, 2006, 5:00 – 8:00 PM**

Old Rock School Auditorium  
400 West Main St  
Valdese, NC

The Division of Water Resources will hold a public meeting to receive comments on the request by the Cities of Concord and Kannapolis for an interbasin transfer from the Catawba River and Yadkin River Basins to the Rocky River Basin. The North Carolina Environmental Management Commission (EMC) has requested this meeting in order to facilitate further public comment.

The public meeting will start at 5:00 PM on September 7, 2006 in the Old Rock School Auditorium in Valdese, NC. Division of Water Resources (DWR) staff members will be available to answer questions from 4:00 – 5:00 PM at the meeting location.

All statements made at the meeting will be audio recorded. This recording will be provided to members of the EMC. Oral statements will not be included in the written record for this decision. Interested parties are encouraged to submit written comments for the record through September 30, 2006. Based on the number of people who wish to speak, the length of oral presentations may be limited. Speakers will not be allowed to give their allotted time to other speakers.

The Cities of Concord and Kannapolis are requesting an interbasin transfer (IBT) certificate from the EMC for a maximum of 36 million gallons per day (MGD) with an annual average transfer of 22 MGD. The communities desire to transfer water from the Catawba River and Yadkin River Basins to the Rocky River Basin. The IBT request is for up to a maximum of 10 MGD to be transferred from the Yadkin River Basin with the remainder to come from the Catawba River Basin.

The Division of Water Resources is currently preparing a report which will summarize revised modeling and other analyses related to the impacts of the proposed IBT. The report will correct errors that were made in the modeling portion of the Final Environmental Impact Statement and in a supplement to this document. This report will be available before September 1 and will be available for download from the DWR website. The public may inspect this and any document related to this request during normal business hours at the offices of DWR, 512 N. Salisbury

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Street, Room 1106, Archdale Building, Raleigh. These documents may also be viewed at the DWR web site at:

[http://www.ncwater.org/Permits\\_and\\_Registration/Interbasin\\_Transfer/](http://www.ncwater.org/Permits_and_Registration/Interbasin_Transfer/)

Written comments on the FEIS should be mailed to:

Phil Fragapane, Division of Water Resources  
Department of Environment and Natural Resources  
1611 Mail Service Center  
Raleigh, NC 27699-1611

Comments may also be submitted electronically to [Phil.Fragapane@ncmail.net](mailto:Phil.Fragapane@ncmail.net). Mailed and emailed comments will be given equal weight. **The comment period closes on September 30, 2006.**

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## Notice of Public Meeting – September 19, 2006



North Carolina Department of Environment and Natural Resources  
Division of Water Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary  
John N. Morris, Director

### **Cities of Concord and Kannapolis Proposed Interbasin Transfer**

#### **NOTICE OF PUBLIC MEETING**

**September 19, 2006, 6:00 – 9:15 PM**  
**Olympic High School Gymnasium**  
**4301 Sandy Porter Rd.**  
**Charlotte, NC 28273**

The Division of Water Resources will hold a public meeting to receive comments on the request by Concord and Kannapolis for an interbasin transfer from the Catawba River and Yadkin River Basins to the Rocky River Basin. The North Carolina Environmental Management Commission (EMC) has requested this meeting in order to facilitate further public comment.

The public meeting will start at 6:00 PM. Division of Water Resources (DWR) staff members will be available to answer questions at 5:00 PM at the meeting location.

The presiding officer will begin the meeting with a review of the proposal and ground rules for the meeting. All statements made at the meeting will be audio recorded. This recording will be provided to members of the EMC. Oral statements will also be transcribed and included in the written record. Interested parties who wish not to speak during the meeting may submit written comments for the record. Those must be received by Sept. 30, 2006.

The site of the public meeting, Olympic High School, will be open to the public beginning at 4:30 PM. Speakers will be asked to register prior to the meeting. Speaker sign-in will begin promptly at 4:30 PM. In order to accommodate all viewpoints during this registration, speakers will be asked if they wish to speak for or against the proposal. Opponents will be given a total of 90 minutes to present their views. Proponents will be given a total of 90 minutes to present their views. The length of oral presentations for each speaker will be between two and three minutes, based on the number of people who sign up to speak. Speakers will not be allowed to give their allotted time to other speakers.

The Division of Water Resources requests that everyone be respectful during presentations so that every speaker's views are heard. The meeting will adjourn no later than 9:15 p.m.

Concord and Kannapolis are requesting an interbasin transfer (IBT) certificate from the EMC for a maximum of 36 million gallons per day (MGD) with an annual average transfer of 22 MGD.

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The communities desire to transfer water from the Catawba River and Yadkin River Basins to the Rocky River Basin. The IBT request is for up to a maximum of 10 MGD to be transferred from the Yadkin River Basin with the remainder to come from the Catawba River Basin.

The Division of Water Resources has prepared a report summarizing revised modeling and other analyses related to the impacts of the proposed IBT. The report corrects errors that were made in the modeling portion of the Final Environmental Impact Statement and in a supplement to this document. This report is available for download at the following web address:

[http://www.ncwater.org/Data\\_and\\_Modeling/Catawba/Reports/August31\\_2006\\_Analysis\\_Report.pdf](http://www.ncwater.org/Data_and_Modeling/Catawba/Reports/August31_2006_Analysis_Report.pdf)

The public may inspect this and any document related to this request during normal business hours at the offices of DWR, 512 N. Salisbury Street, Room 1106, Archdale Building, Raleigh NC. These documents may also be viewed at the DWR web site at:

[http://www.ncwater.org/Permits\\_and\\_Registration/Interbasin\\_Transfer/](http://www.ncwater.org/Permits_and_Registration/Interbasin_Transfer/)

Written comments on the FEIS should be mailed to:

Phil Fragapane, Division of Water Resources  
Department of Environment and Natural Resources  
1611 Mail Service Center  
Raleigh, NC 27699-1611

Comments may also be submitted electronically to [Phil.Fragapane@ncmail.net](mailto:Phil.Fragapane@ncmail.net). Mailed and emailed comments will be given equal weight. **The comment period closes on September 30, 2006.**

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***Attachment C – Statutes and Administrative Rules***

# Registration of Water Withdrawals and Transfers

## Regulation of Surface Water Transfers

### Statutory Authority for Regulating Interbasin Transfers

#### Part 2A. Registration of Water Withdrawals and Transfers; Regulation of Surface Water Transfers.

##### § 143-215.22G. Definitions.

In addition to the definitions set forth in G.S. 143-212 and G.S. 143-213, the following definitions apply to this Part.

(1) "River basin" means any of the following river basins designated on the map entitled "Major River Basins and Sub-basins in North Carolina" and filed in the Office of the Secretary of State on 16 April 1991. The term "river basin" includes any portion of the river basin that extends into another state. Any area outside North Carolina that is not included in one of the river basins listed in this subdivision comprises a separate river basin.

- a. 1-1 Broad River.
- b. 2-1 Haw River.
- c. 2-2 Deep River.
- d. 2-3 Cape Fear River.
- e. 2-4 South River.
- f. 2-5 Northeast Cape Fear River.
- g. 2-6 New River.
- h. 3-1 Catawba River.
- i. 3-2 South Fork Catawba River.
- j. 4-1 Chowan River.
- k. 4-2 Meherrin River.
- l. 5-1 Nolichucky River.
- m. 5-2 French Broad River.
- n. 5-3 Pigeon River.
- o. 6-1 Hiwassee River.
- p. 7-1 Little Tennessee River.
- q. 7-2 Tuckasegee (Tuckasegee) River.
- r. 8-1 Savannah River.
- s. 9-1 Lumber River.
- t. 9-2 Big Shoe Heel Creek.
- u. 9-3 Waccamaw River.
- v. 9-4 Shallotte River.
- w. 10-1 Neuse River.
- x. 10-2 Contentnea Creek.
- y. 10-3 Trent River.
- z. 11-1 New River.
- aa. 12-1 Albemarle Sound.
- bb. 13-1 Ocoee River.
- cc. 14-1 Roanoke River.
- dd. 15-1 Tar River.
- ee. 15-2 Fishing Creek.
- ff. 15-3 Pamlico River and Sound.

- gg. 16-1 Watauga River.
- hh. 17-1 White Oak River.
- ii. 18-1 Yadkin (Yadkin-Pee Dee) River.
- jj. 18-2 South Yadkin River.
- kk. 18-3 Uwharrie River.
- ll. 18-4 Rocky River.

(2) "Surface water" means any of the waters of the State located on the land surface that are not derived by pumping from groundwater.

(3) "Transfer" means the withdrawal, diversion, or pumping of surface water from one river basin and discharge of all or any part of the water in a river basin different from the origin. However, notwithstanding the basin definitions in G.S. 143-215.22G(1), the following are not transfers under this Part:

- a. The discharge of water upstream from the point where it is withdrawn.
- b. The discharge of water downstream from the point where it is withdrawn. (1991, c. 712, s. 1; 1993, c. 348, s. 1; 1997-443, s. 15.48(b).)

**§ 143-215.22H. (V2)(Effective March 1, 2000) Registration of water withdrawals and transfers required.**

(a) Any person who withdraws 100,000 gallons per day or more of water from the surface or groundwaters of the State or who transfers 100,000 gallons per day or more of water from one river basin to another shall register the withdrawal or transfer with the Commission. A person registering a water withdrawal or transfer shall provide the Commission with the following information:

- (1) The maximum daily amount of the water withdrawal or transfer expressed in thousands of gallons per day.
  - (1a) The monthly average withdrawal or transfer expressed in thousands of gallons per day.
- (2) The location of the points of withdrawal and discharge and the capacity of each facility used to make the withdrawal or transfer.
- (3) The monthly average discharge expressed in thousands of gallons per day.

(b) Any person initiating a new water withdrawal or transfer of 100,000 gallons per day or more shall register the withdrawal or transfer with the Commission not later than six months after the initiation of the withdrawal or transfer. The information required under subsection (a) of this section shall be submitted with respect to the new withdrawal or transfer.

(b1) Subsections (a) and (b) of this section shall not apply to a person who withdraws or transfers less than 1,000,000 gallons per day of water for activities directly related or incidental to the production of crops, fruits, vegetables, ornamental and flowering plants, dairy products, livestock, poultry, and other agricultural products.

(c) A unit of local government that has completed a local water supply plan that meets the requirements of G.S. 143-355(l) and that has periodically revised and updated its plan as required by the Department has satisfied the requirements of this section and is not required to separately register a water withdrawal or transfer or to update a registration under this section.

(d) Any person who is required to register a water withdrawal or transfer under this section shall update the registration by providing the Commission with a current version of the information required by subsection (a) of this section at five-year intervals following the initial registration. A person who submits information to update a registration of a water withdrawal or transfer is not required to pay an additional registration fee under G.S. 143-215.3(a)(1a) and G.S. 143-215.3(a)(1b), but is subject to the late registration fee established under this section in the event that updated information is not submitted

as required by this subsection.

(e) Any person who is required to register a water transfer or withdrawal under this section and fails to do so shall pay, in addition to the registration fee required under G.S. 143- 215.3(a)(1a) and G.S. 143-215.3(a)(1b), a late registration fee of five dollars (\$5.00) per day for each day the registration is late up to a maximum of five hundred dollars (\$500.00). A person who is required to update a registration under this section and fails to do so shall pay a fee of five dollars (\$5.00) per day for each day the updated information is late up to a maximum of five hundred dollars (\$500.00). A late registration fee shall not be charged to a farmer who submits a registration that pertains to farming operations. (1991, c. 712, s. 1; 1993, c. 344, s. 1; c. 553, s. 81; 1998-168, s. 3.)

**§ 143-215.22L. Regulation of surface water transfers.**

(a) No person, without first securing a certificate from the Commission, may:

(1) Initiate a transfer of 2,000,000 gallons of water or more per day from one river basin to another.

(2) Increase the amount of an existing transfer of water from one river basin to another by twenty-five percent (25%) or more above the average daily amount transferred during the year ending July 1, 1993, if the total transfer including the increase is 2,000,000 gallons or more per day.

(3) Increase an existing transfer of water from one river basin to another above the amount approved by the Commission in a certificate issued under G.S. 162A-7 prior to July 1, 1993.

(b) Notwithstanding the provisions of subsection (a) of this section, a certificate shall not be required to transfer water from one river basin to another up to the full capacity of a facility to transfer water from one basin to another if the facility was existing or under construction on July 1, 1993.

(c) An applicant for a certificate shall petition the Commission for the certificate. The petition shall be in writing and shall include the following:

(1) A description of the facilities to be used to transfer the water, including the location and capacity of water intakes, pumps, pipelines, and other facilities.

(2) A description of the proposed uses of the water to be transferred.

(3) The water conservation measures to be used by the applicant to assure efficient use of the water and avoidance of waste.

(4) Any other information deemed necessary by the Commission for review of the proposed water transfer.

(d) Upon receipt of the petition, the Commission shall hold a public hearing on the proposed transfer after giving at least 30 days' written notice of the hearing as follows:

(1) By publishing notice in the North Carolina Register.

(2) By publishing notice in a newspaper of general circulation in the area of the river basin downstream from the point of withdrawal.

(3) By giving notice by first-class mail to each of the following:

a. A person who has registered under this Part a water withdrawal or transfer from the same river basin where the water for the proposed transfer would be withdrawn.

b. A person who secured a certificate under this Part for a water transfer from the same river basin where the water for the proposed transfer would be withdrawn.

c. A person holding a National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit exceeding 100,000 gallons per day for a discharge located downstream from the proposed withdrawal point of the proposed transfer.

d. The board of county commissioners of each county that is located entirely or partially within the river basin that is the source of the proposed transfer.

e. The governing body of any public water supply system that withdraws water downstream from the withdrawal point of the proposed transfer.

(e) The notice of the public hearing shall include a nontechnical description of the applicant's request and a conspicuous statement in bold type as to the effects of the water transfer on the source and receiving river basins. The notice shall further indicate the procedure to be followed by anyone wishing to submit comments on the proposed water transfer.

(f) In determining whether a certificate may be issued for the transfer, the Commission shall specifically consider each of the following items and state in writing its findings of fact with regard to each item:

(1) The necessity, reasonableness, and beneficial effects of the amount of surface water proposed to be transferred and its proposed uses.

(2) The present and reasonably foreseeable future detrimental effects on the source river basin, including present and future effects on public, industrial, and agricultural water supply needs, wastewater assimilation, water quality, fish and wildlife habitat, hydroelectric power generation, navigation, and recreation. Local water supply plans that affect the source major river basin shall be used to evaluate the projected future municipal water needs in the source major river basin.

(2a) The cumulative effect on the source major river basin of any water transfer or consumptive water use that, at the time the Commission considers the application for a certificate is occurring, is authorized under this section, or is projected in any local water supply plan that has been submitted to the Department in accordance with G.S. 143-355(l).

(3) The detrimental effects on the receiving river basin, including effects on water quality, wastewater assimilation, fish and wildlife habitat, navigation, recreation, and flooding.

(4) Reasonable alternatives to the proposed transfer, including their probable costs, and environmental impacts.

(5) If applicable to the proposed project, the applicant's present and proposed use of impoundment storage capacity to store water during high-flow periods for use during low-flow periods and the applicant's right of withdrawal under G.S. 143-215.44 through G.S. 143-215.50.

(6) If the water to be withdrawn or transferred is stored in a multipurpose reservoir constructed by the United States Army Corps of Engineers, the purposes and water storage allocations established for the reservoir at the time the reservoir was authorized by the Congress of the United States.

(7) Any other facts and circumstances that are reasonably necessary to carry out the purposes of this Part.

(f1) An environmental assessment as defined by G.S. 113A- 9(1) shall be prepared for any petition for a certificate under this section. The determination of whether an environmental impact statement shall also be required shall be made in accordance with the provisions of Article 1 of Chapter 113A of the General Statutes. The applicant who petitions the Commission for a certificate under this section shall pay the cost of special studies necessary to comply with Article 1 of Chapter 113A of the General Statutes.

(g) A certificate shall be granted for a water transfer if the applicant establishes and the Commission concludes by a preponderance of the evidence based upon the findings of fact made under subsection (f) of this section that: (i) the benefits of the proposed transfer outweigh the detriments of the proposed transfer, and (ii) the detriments have been or will be mitigated to a reasonable degree. The conditions necessary to ensure that the detriments are and continue to be mitigated to a reasonable degree shall be attached to the certificate in accordance with subsection (h) of this section.

(h) The Commission may grant the certificate in whole or in part, or deny the certificate. The Commission may also grant a certificate with any conditions attached that the Commission believes are

necessary to achieve the purposes of this Part. The conditions may include mitigation measures proposed to minimize any detrimental effects of the proposed transfer and measures to protect the availability of water in the source river basin during a drought or other emergency. The certificate shall include a drought management plan that specifies how the transfer shall be managed to protect the source river basin during drought conditions. The certificate shall indicate the maximum amount of water that may be transferred. No person shall transfer an amount of water that exceeds the amount in the certificate.

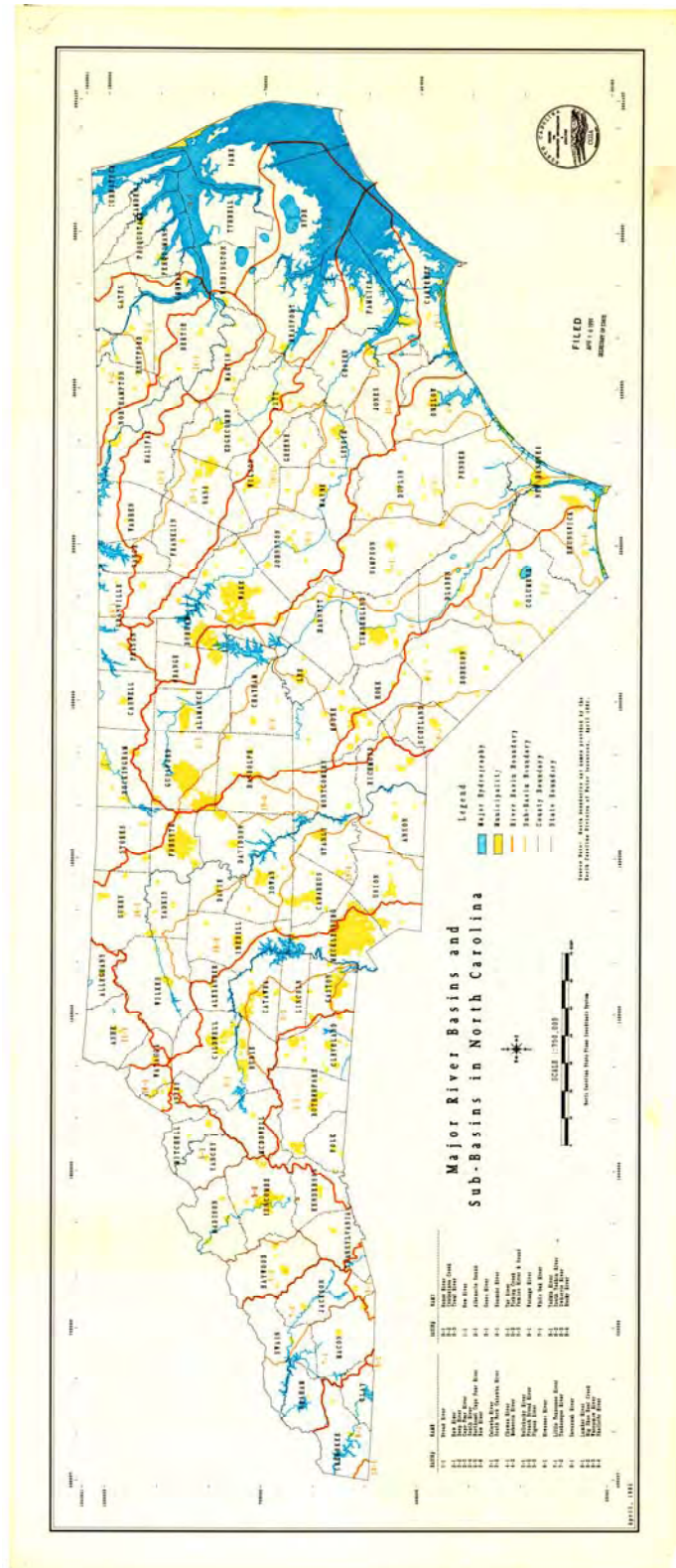
(i) In cases where an applicant requests approval to increase a transfer that existed on July 1, 1993, the Commission shall have authority to approve or disapprove only the amount of the increase. If the Commission approves the increase, however, the certificate shall be issued for the amount of the existing transfer plus the requested increase. Certificates for transfers approved by the Commission under G.S. 162A-7 shall remain in effect as approved by the Commission and shall have the same effect as a certificate issued under this Part.

(j) In the case of water supply problems caused by drought, a pollution incident, temporary failure of a water plant, or any other temporary condition in which the public health requires a transfer of water, the Secretary of the Department of Environment and Natural Resources may grant approval for a temporary transfer. Prior to approving a temporary transfer, the Secretary of the Department of Environment and Natural Resources shall consult with those parties listed in G.S. 143-215.22I(d)(3) that are likely to be affected by the proposed transfer. However, the Secretary of the Department of Environment and Natural Resources shall not be required to satisfy the public notice requirements of this section or make written findings of fact and conclusions in approving a temporary transfer under this subsection. If the Secretary of the Department of Environment and Natural Resources approves a temporary transfer under this subsection, the Secretary shall specify conditions to protect other water users. A temporary transfer shall not exceed six months in duration, but the approval may be renewed for a period of six months by the Secretary of the Department of Environment and Natural Resources based on demonstrated need as set forth in this subsection.

(k) The substantive restrictions and conditions upon surface water transfers authorized in this section may be imposed pursuant to any federal law that permits the State to certify, restrict, or condition any new or continuing transfers or related activities licensed, relicensed, or otherwise authorized by the federal government.

(l) When any transfer for which a certificate was issued under this section equals eighty percent (80%) of the maximum amount authorized in the certificate, the applicant shall submit to the Department a detailed plan that specifies how the applicant intends to address future foreseeable water needs. If the applicant is required to have a local water supply plan, then this plan shall be an amendment to the local water supply plan required by G.S. 143-355(l). When the transfer equals ninety percent (90%) of the maximum amount authorized in the certificate, the applicant shall begin implementation of the plan submitted to the Department.

(m) It is the public policy of the State to maintain, protect, and enhance water quality within North Carolina. Further, it is the public policy of the State that the cumulative impact of transfers from a source river basin shall not result in a violation of the antidegradation policy set out in 40 Code of Federal Regulations § 131.12 (1 July 1997 Edition) and the statewide antidegradation policy adopted pursuant thereto. (1993, c. 348, s. 1; 1997-443, ss. 11A.119(a), 15.48(c); 1997-524, s. 1; 1998-168, s. 4.)





# Administrative Code for Interbasin Transfer

## Administrative Code for Interbasin Transfer

### SECTION .0400 - REGULATION OF SURFACE WATER TRANSFERS

#### .0401 APPLICABILITY

(a) Pursuant to G.S. 143-215.22G(3), the amount of a transfer shall be determined by the amount of water moved from the source basin to the receiving basin, less the amount of the water returned to the source basin.

(b) Pursuant to G.S. 143-215.22G(3)(a) and 143-215.22G(3)(b), and notwithstanding the definition of basin in G.S. 143-215.22G(1), the following are not transfers:

- (1) The discharge point is situated upstream of the withdrawal point such that the water discharged will naturally flow past the withdrawal point.
- (2) The discharge point is situated downstream of the withdrawal point such that water flowing past the withdrawal point will naturally flow past the discharge point.

(c) The withdrawal of surface water from one river basin by one person and the purchase of all or any part of this water by another party, resulting in a discharge to another river basin, shall be considered a transfer. The person owning the pipe or other conveyance that carries the water across the basin boundary shall be responsible for obtaining a certificate from the Commission. Another person involved in the transfer may assume responsibility for obtaining the certificate, subject to approval by the Division of Water Resources.

(d) Under G.S. 143-215.22I(b), a certificate is not required to transfer water from one river basin to another up to the full capacity of a facility to transfer water from one basin to another if the facility was existing or under construction on July 1, 1993. The full capacity of a facility to transfer water shall be determined as the capacity of the combined system of withdrawal, treatment, transmission, and discharge of water, limited by the element of this system with the least capacity as existing or under construction on July 1, 1993.

*History Note: Statutory Authority G.S. 143-215.22G; 143-215.22I; 143B-282(a)(2);  
Eff. September 1, 1994.*

#### .0402 JUDICIAL REVIEW

Judicial Review of the Commission's decision shall be as provided in G.S. 143-215.5.

*History Note: Statutory Authority G.S. 143-215.5; 143B-282(a)(2);  
Eff. September 1, 1994.*

