



Catawba-Wateree Water Management Group

INTEGRATED WATER RESOURCES PLAN

Water Demand Projection Updates

FINAL

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Reissued March 2023 with modifications to Duke Energy's net water withdrawals and probabilistic forecast.

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Abbreviations

Abbreviation	Definition
A&I	Agricultural and Irrigation
AGR	Annual growth rate
Basin	Catawba-Wateree River Basin
CRA	Comprehensive Relicensing Agreement
CW-DMAG	Catawba-Wateree Drought Management Advisory Group
CWWMG	Catawba-Wateree Water Management Group
DMR	Discharge Monitoring Reports
Duke	Duke Energy Carolinas, LLC
GIS	Geographic information systems
gpcd	Gallons per capita per day
gpd	Gallons per day
GSP	Gross State Product
IBT	Interbasin transfer
IND	Industrial
IWRP	Integrated Water Resources Plan
LWSP	Local Water Supply Plan
mgd	Million gallons per day
NC	North Carolina
NCDWR	North Carolina Division of Water Resources
NCSU	North Carolina State University
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
Project	Catawba-Wateree Hydroelectric Project
PW/WU	Public Water Suppliers and Wastewater Utilities
SC	South Carolina
SCDHEC	South Carolina Department of Health and Environmental Control
TEP	Thermal-Electric Power
USGS	United States Geological Society
WSMP	Water Supply Master Plan
WSS	Water Supply Study
WWATR	Water Withdrawal and Transfer Registry

1 Introduction

1.1 Catawba-Wateree Water Management Group

Beginning in June 2003, more than 160 stakeholders joined Duke Energy Carolinas, LLC (Duke Energy) in an extensive relicensing process that developed an agreement (Comprehensive Relicensing Agreement (CRA)) addressing the continued operation of Duke Energy's Catawba-Wateree Hydro Project (Project) and management of the Catawba-Wateree River Basin's (Basin) water supplies. In addition to supplying hydroelectric power, the Project also supports water supply for public health, agriculture, irrigation, thermal power plants, industries, economic growth, and recreational uses. The CRA anticipated a 50-year term for the Project's New License, and relicensing studies concluded that over that term, the demands on both the Basin's water supply and the Project's storage capability would increase significantly and approach or exceed the storage limits that the Project can provide during certain drought situations.

The CRA called for the establishment of the Catawba-Wateree Basin Water Management Group (CWWMG) and defines its purposes, objectives, and membership structure – a group of voluntary members that contribute dues to the CWWMG. This 501(c)(3) non-profit group was incorporated in late 2007 after a 3½-year stakeholder process associated with Duke Energy's re-licensing efforts.

The CWWMG currently consists of 17 public water utility members and Duke Energy and exists to identify, fund, and manage projects that help extend and enhance the capacity of the Catawba-Wateree River to meet human water needs while maintaining the ecological health of the waterway. The CWWMG's definition of the Catawba-Wateree River Basin was initially based on Duke Energy's Catawba-Wateree Project which includes 11 reservoirs and has since been expanded to include approximately 76 additional river miles downstream to the confluence of the Wateree and Congaree Rivers.

1.2 Integrated Water Resources Plan Project Objectives

1.2.1 Historic Planning Objectives

In 2010, there was a Settlement Agreement of a U.S. Supreme Court case (SC v NC, Original No. 138) over water rights within the Basin. As part of this settlement, the states of North Carolina and South Carolina committed to periodically updating the long-range water supply plan in cooperation with CWWMG as part of an ongoing Water Resources Planning process. The Settlement Agreement stipulates the States will provide updates supported by regulatory agencies from both North Carolina (NC) and South Carolina (SC) no less often than every 10 years.

An initial evaluation of water use projections until the Year 2058 were completed for relicensing of Duke Energy's Catawba-Wateree Hydroelectric Project in the 2006 Water Supply Study (WSS). Following the effort, the Water Supply Master Plan (WSMP) was published by the CWWMG in May 2014, which extended the water use projections until the year 2065. This effort dealt primarily with how to extend the safe yield of the Catawba River and the eleven associated

impoundments beyond the year 2100. Safe yield is a term used to describe the amount of water theoretically available for sustained use at a given location in a watershed. That project is often referred to as “Phase II” of the WSMP. A subsequent project referred to as “Phase III” reported on water quality trends that could impact the future suitability of water from the Basin for use as a drinking water supply source or for cooling thermal power plants.

1.2.2 Current IWRP Objectives

In 2021, the CWWMG began the five-year process of updating the WSMP. The initial effort first developed a vision, plan, and scope for the WSMP Update through a series of workshops with CWWMG member organization representatives and stakeholders. As a result of these initial activities, the WSMP has been rebranded as the Catawba-Wateree Integrated Water Resources Plan (IWRP) to better represent the approach to long-term planning of both water quality and water supply and is planned for completion over five years.

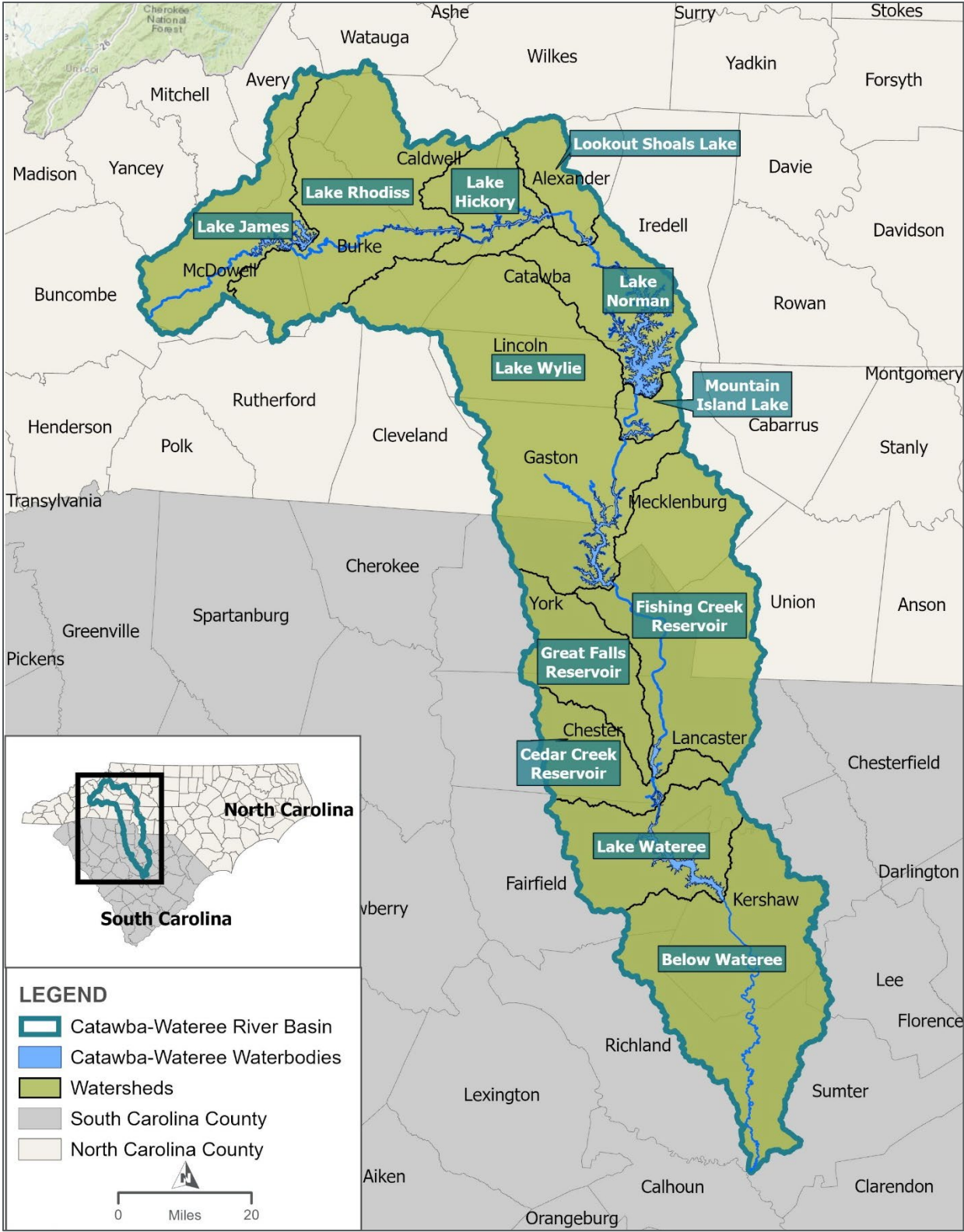
Year 1 of the IWRP includes an update to the 2014 WSMP future water demand projections, which will set the foundation for all future efforts. The following sections describe the methodology and results of the forecasting update.

2 Forecast Approach Overview

A critical component of the Year 1 IWRP called for updating the reliable water withdrawal and return projections for the Catawba-Wateree River Basin. The IWRP forecasting approach largely parallels that of the WSMP regarding data collection and projection methodology. The primary differences involve extending the projection year to 2075, the expanded Basin boundary, and the incorporation of forecasting uncertainty through probabilistic analysis using the range of variations within the historic data.

2.1 Catawba-Wateree River Basin Boundary

There are 11 dams and reservoirs in the Catawba-Wateree Basin operated by Duke Energy. For this effort, the Catawba-Wateree Project was delineated into 12 watersheds, one for each reservoir in the Project and one for the watershed downstream of Lake Wateree, the southernmost reservoir. The watershed labeled as ‘Below Wateree’ reflects the additional area added through the change in the Basin boundary, which was not considered in previous forecasting efforts. The considered watersheds are shown in Figure 2-1.



2.2 Basis of Forecast

2.2.1 Water Use Categories

Similar to the approach used in the WSS and WSMP, the IWRP forecast focuses on a watershed system analysis of total net water usage by performing a detailed evaluation of each large water withdrawal and return user. The IWRP includes historical water withdrawal and return data from 2006 to 2020 (where available) and forecasts demand to 2075 for each larger user within the newly expanded Basin boundary.

Specifically, the projections focus on those users that currently withdraw or return from a surface water source at an average daily rate of 100,000 gallons per day (gpd - or 0.1 Million Gallons per Day (mgd)) or more from the Basin. While there may be numerous users that withdraw or return water at rates less than 100,000 gpd, their impact on net withdrawals from the watersheds of each reservoir was considered insignificant for long-term water withdrawal analyses. The underlying assumption is that many of these small users would likely be withdrawing and returning water at similar rates and within the same watershed. Additionally, the net withdrawals produced by these users would be very small relative to the overall net withdrawals resulting from users that are analyzed in the effort. This methodology is consistent with the previous CWWMG WSMP and state-level water supply planning efforts in NC and SC.

Those entities using the Catawba-Wataeree River Basin for water supply or used water returns can generally be grouped into one of the following major categories:

- **Agricultural and Irrigation (A&I)** – These users include farms, golf courses, and other facilities that utilize water for livestock production, irrigation, and other uses.
- **Thermal-Electric Power (TEP)** – Energy generation (non-hydro) facilities that utilize water for cooling and other energy production needs.
- **Public Water Suppliers and Wastewater Utilities (PW/WU)** – These systems include municipal and other utility agencies that withdraw and treat water for public consumption through residential, commercial, and industrial use; and systems that treat wastewater and return it to a surface water source.
- **Direct Industrial (Ind)** – These industrial users have direct withdrawals and/or returns from surface water sources and utilize water in their manufacturing processes.

2.2.2 Forecast Base Year

The starting point of any forecast is critical to a projection effort as it sets the trend for the entire forecast. The most recent historical data (2018 to 2020) used in the IWRP were likely impacted by several factors: Climatologically, the region was characterized as a wet period which could influence operational procedures for direct industrial users, reduce the need for irrigation both for public water supply customers and A&I, and increase the amount of water treated by wastewater utilities (in the form of inflow and infiltration). Figure 2-2 presents an example of the climatological shifts in recent years using National Oceanic and Atmospheric Administration (NOAA) annual precipitation data for the Charlotte Region. A similar pattern would be observed for precipitation data in the upper portions of the basin. The onset of the COVID-19 pandemic in early 2020 also impacted water use in several sectors as more people were working from home,

schools shifted to virtual learning, patients at hospitals increased, and industrial and manufacturing operations shifted.

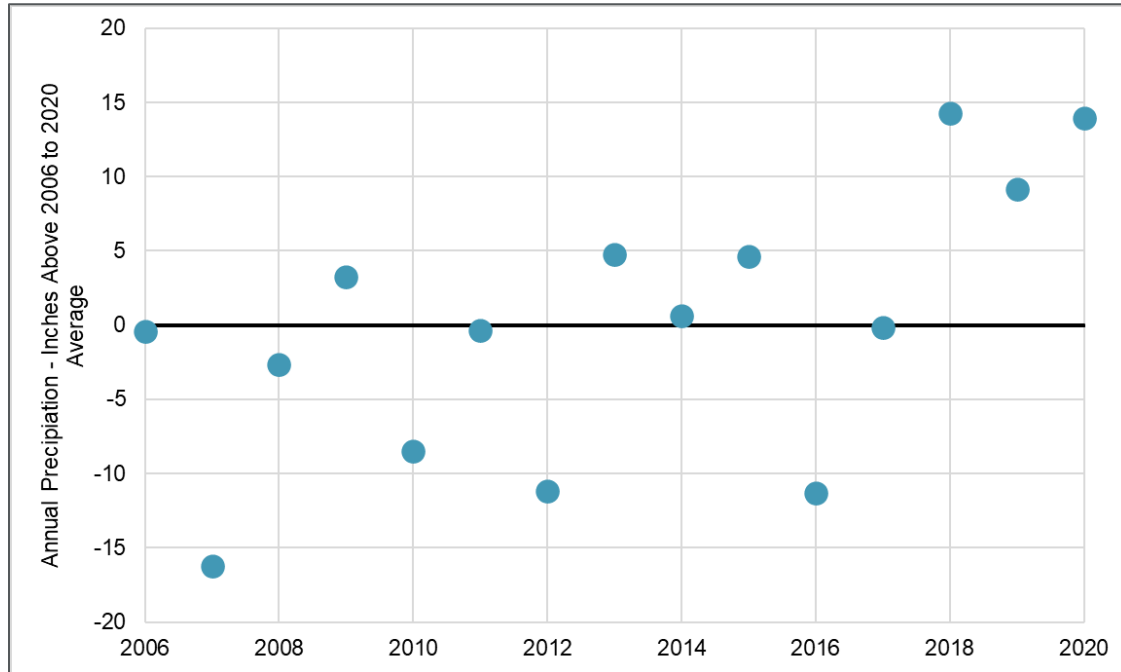


Figure 2-2. NOAA Charlotte Region Annual Precipitation Inches Above 2006 to 2020 Average

Given the unique circumstances for the most recent water withdrawal and return data, a new Base Year was calculated using the historic average of water use (2006 to 2020, when available), for each water withdrawal and return in the Basin. Developing the new Base Year captures the cultural and climatological variation seen in the historic data and is thought to be a more representative starting point for future projections, as opposed to focusing on the most recent year of data (e.g., 2012 for the 2014 WSMP).

2.3 Deterministic and Probabilistic Forecast Approach

The IWRP uses a two-part forecasting approach to 1) develop a deterministic forecast that results in a single point estimate of water withdrawals and demands for each forecasting milestone year, and 2) incorporate uncertainty into the deterministic forecast through probabilistic analysis. The underlying assumptions and methodology are described in the following sections along with forecasts for each forecast assessment.

3 Forecast Methodology

The following section summarizes the methods and assumptions used to develop water demand projections for each major water use category. The methods and assumptions applied to each water use analyzed for demand projections in this IWRP are recorded in Appendices B, C, D, and E.

3.1 Agricultural and Irrigation

For the purposes of the IWRP, A&I projections are comprised of crop irrigation (Crop), livestock watering (Livestock), golf course irrigation (Golf Course), and lakeside residential property irrigation (Lakeside Irrigation) categories, and withdrawals are completely consumptive (i.e., no surface returns). The minimum registration required for agricultural withdrawals is 1 mgd by North Carolina statute and 3 million gallons in month by South Carolina statute. As a result, data on specific A&I user withdrawals are limited and a multi-step process was utilized to determine water use within the Basin.

3.1.1 Assumptions

It should be noted that the A&I forecasts incorporated the following key assumptions:

- A&I water withdrawals for Crop and Livestock categorical use for historic and future years rely on the highest water use rates in historical data published by the United States Geological Society (USGS). The records are viewed as conservative estimates by the agricultural community but offer the best available historic estimates suitable for planning purposes.
- A&I water withdrawals for Crop and Livestock water use for a given county are estimated based on the actual distribution and types of agricultural land use within the county and Basin, as determined from USGS GIS datasets. Changes in irrigation technology or methods are not explicitly accounted for in the forecasting.
- A&I water withdrawals for Golf Course use relies on actual reported and estimated water use based on golf courses within the Basin, as determined from geographic information systems (GIS). Future water use projections rely on the predicted growth of the golf industry and the corresponding addition of golf courses within the basin over the projection period.
- The percentage of a county's agricultural land area (by type) within a particular reservoir's watershed is commensurate with the percentage of that county's total A&I water withdrawal that is taken from that watershed. For example, if 25 percent of a county's agricultural crop area (harvested crops and pasture land) resides within a particular watershed, it was assumed that 25 percent of that county's A&I water demand for the Crop category is satisfied by the water potentially flowing into the reservoir associated with that watershed.
- Private irrigation by individual residential lakeside properties directly from the lake presents a measurable impact on the net water withdrawal from the Basin, as determined in North Carolina State University's (NCSU) March 2011, "Catawba River Basin Residential Irrigation Water Conservation Study." Residential lakeside irrigation water use projections, based on NCSU's study, are currently being incorporated into the overall water use projections of this IWRP, differing from the previous omission of this water use category in the 2006 Water Supply Study. For the IWRP, residential lakeside irrigation water use projections are considered a sub-category of the Agriculture-Irrigation projections.

Projections were completed at the watershed level. GIS was utilized to determine the percentage of each county's total agricultural land area that lies in each reservoir's watershed within the Basin.

3.1.2 Crop and Livestock Water Use Projection Methodology

Water use data for Crop and Livestock categories were obtained from the USGS *Estimated Use of Water in the U.S.* national level database which provides historical water use records by state, county, and use type. Data was obtained from this source in five-year increments (1990, 1995, 2000, 2005, 2010, and 2015) for North Carolina and South Carolina on a per-County basis. At the time of the analysis, the 2020 information was not publicly available. Additionally, the USGS *National Land Cover Dataset* for GIS was used to identify county-level pasture and row crop land areas.

The A&I water use reported in the USGS database varies considerably between reporting years, and no definitive trend in water use (increase or decrease) exists. Therefore, the use of an annual growth rate (AGR) for water use projections is not relevant for the Crop and Livestock categories. Instead, to forecast water withdrawals for each county, the greatest water withdrawal from the 1990, 1995, 2000, 2005, 2010, and 2015 USGS data sets was selected as the county water use for all future A&I consumption, by category. The percentage of each county's agricultural land area in each watershed was then identified using GIS, and each county's crop and livestock water use was calculated by watershed. County-level results were then compiled according to their respective watershed. These values serve as the basis for Crop and Livestock A&I water use projections for each watershed. An example calculation for Lookout Shoals Lake is presented in Table 3-1.

Table 3-1 Example Projection Methodology: Lookout Shoals Lake Watershed Crop and Livestock Water Use

	Watershed (Sq. Mi.)	Percent of Watershed	Weighted A&I Water Use (mgd)						Applied MGD
			1990	1995	2000	2005	2010	2015	
Alexander, NC	122.3	87.8%	1.00	0.74	0.58	0.84	1.03	1.00	1.03
Catawba, NC	13.4	9.6%	0.06	0.06	0.05	0.05	0.09	0.06	0.09
Iredell, NC	3.6	2.6%	0.03	0.01	0.01	0.01	0.02	0.03	0.03
Wilkes, NC	0.1	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	139.3	100.0%	1.09	0.80	0.64	0.89	1.14	1.09	1.15

The WSMP forecast applied the same value for each projection decade beginning with the first milestone year (i.e., assuming no increase or decrease in A&I water use over the projection period). The IWRP instead applies the same value for each projection decade beginning in 2045 and assumes a ramp-up period between 2015 and 2045. This approach allows for additional time before the full water use projection is implemented.

3.1.3 Golf Course Water Use Projection Methodology

Historical golf course water use was determined based on user withdrawal data compiled by Duke Energy, the North Carolina Division of Water Resources (NCDWR), and the South Carolina Department of Health and Environmental Control (SCDHEC). Additional information

was collected from spatial analysis of national-level datasets including the U.S Census Bureau and USGS.

Duke Energy water use data was utilized for select golf courses that have direct surface water intakes on Duke-operated reservoirs and are required to report their monthly raw water intake for irrigation use to Duke Energy annually through the Catawba-Wateree Drought Management Advisory Group (CW-DMAG). Additional data was compiled from North and South Carolina State databases used to track monthly water use and sources and the U.S. Census Bureau to determine the historical number of golf courses by county (1997, 2002, 2007, 2012, and 2017).

The number and spatial distribution of golf courses within the Basin were identified using GIS and filtered to only include surface water users. Historical water use was extracted from the data sets and constant water use was assumed. Golf course water use was then compiled by watershed.

Future water use projections were generated by determining the historical average water use for golf courses within the Basin and through the development of the historical golf course annual growth rate (AGR) by county based on data from the US Economic Census for the number of golf courses between 1997 and 2017. Using this AGR, projected new golf courses were calculated based on the number of existing golf courses for each county and the calculated AGR. New golf course water use was then projected using the average monthly historical water use for existing golf courses in the Basin multiplied by the number of projected new golf courses.

3.1.4 Lakeside Irrigation Water Use Projection Methodology

Lakeside Irrigation water use projections are based on work initially developed for the WSMP, which used an average irrigation application rate (during the irrigation season of April through October) for lakeside properties, as related to the area of lakeside properties. For these projections, two projection scenarios were developed:

1. Current Scenario- A 2011 estimate of current lakeside residential irrigation water use
2. Build-Out Scenario- A long-term estimate of the maximum amount that may be withdrawn for lakeside lot irrigation if all available residential properties were developed.

For the IWRP, the projections for each watershed were based on a linear projection of the WSMP Current Scenario projections. As the Build-Out Scenario represents a maximum potential irrigation water use in the future, water use through 2075 was estimated by applying an area-weighted AGR for each watershed. These area-weighted AGRs were developed with consideration given to the percentage of each county within a given watershed, as related to the projected population AGRs for each county. This watershed-specific AGR was then applied to the Base Year lakeside irrigation water use projections for each of the twelve watersheds, through 2075. A maximum water use growth limit in each watershed for residential lakeside property irrigation was set equal to the Build-Out Scenario projections established by Duke Energy. However, none of the AGR-based projections reached the Build-Out Scenario in any watershed, although projections did come close in several watersheds.

3.2 Thermal-Electric Power

Duke Energy currently operates two nuclear, one combined cycle power, and two coal-fired plants in the Basin. As part of a recent planning effort, Duke Energy's internal Planning Team completed an assessment for future system-wide energy needs and equated energy generation type to project water usage needs, which varies based on technologies. As it relates to the net outflow of water from the Basin, accurate accounting for Duke Energy's current and future demand is critical to the IWRP's success.

Table 3-2 summarizes the current and future power production assignments made by Duke Energy for the IWRP. The total water demand projections for these new and expanded facilities are included in Appendix A summary sheets and Appendix C detail sheets.

Table 3-2 Duke Energy Existing and Future Power Plant Requirements

Power Plant Description	Reservoir	Existing (E)/ New (N)	Type	Estimated Year New Facilities Completed
Lincoln CT		E	Gas Combustion Turbine	
Marshall	Norman	E	Coal	-
McGuire	Norman	E	Nuclear	-
Catawba	Wylie	E	Nuclear	-
Allen	Wylie	E	Coal	-
McGuire	Norman	N	Nuclear	2065
Catawba	Wylie	N	Nuclear	2075
	Norman	N	Nuclear	2035
	Wateree	N	Nuclear	2035

Note: Feedback provided by Duke after the initial publication of this report adjust net water loss projections for current facilities as well as added two new nuclear facilities with anticipated completion year by 2035.

Table 3-3 presents key assumptions regarding the future of new and existing power facilities used by Duke Energy in the development of the projection.

Table 3-3 Duke Energy Future Power Plant Assumptions

Projection Period	Assumptions
2020-2025	Allen Steam Station units retired
2026-2035	No change in power generation
2036-2045	- Marshall Steam Station units retire - Modular nuclear reactors within Lake Norman and Lake Wateree sub-basins
2046-2055	No change in power generation
2056-2065	- McGuire Nuclear Station retired - Modular nuclear reactors added to provide power generation equal to McGuire Nuclear Station - Catawba Nuclear Station retired
2066- 2075	Modular nuclear reactors added to provide power generation equal to Catawba Nuclear Station

3.3 Public Water Supplies and Wastewater Utilities

Forecasting water withdrawal and return projections on a regional basis for public water supplies and wastewater utilities required a multi-step approach:

1. Collect available monthly historical withdrawals and returns data or leverage previously developed future projections. This data included:
 - a. Local Water Supply Plans (LWSPs) (for water systems in North Carolina) – 2002 and 2007-2020
 - b. CW-DMAG data submissions (2011-2020)
 - c. Discharge Monitoring Reports (DMRs) or wastewater discharge/return data for wastewater facilities –2002-2020.
 - d. Recent studies and reports (e.g., water or wastewater master plans) from specific users.
 - e. Historical population figures and population projections.
 - a. Significant industrial users for large public water supply systems (e.g., those using 50,000 gpd or more).
2. Disaggregate industrial and other types of usage from historical water withdrawal and return results provided by the public water systems and evaluated usage per customer type for each system.
3. Evaluate future increases in water demand by evaluating growth within existing service areas, and thorough evaluation of service area expansion for each system or industry.
4. Generate revised withdrawal and return projections for each existing user based on annual average withdrawal and return rates for the projection period.
5. Compare revised projections to LWSP projections (for NC entities), 2006 WSS, and 2014 WSMP and analyze any differences.
6. Sum individual results into total projections for each watershed.

The goal of this forecasting effort was to minimize the assumptions required and be equitable in the treatment of each system. The methodology used is outlined in further detail in the subsections which follow.

3.3.1 Data Gathering Process

The Catawba-Wateree River Basin lies within both North and South Carolina, which have separate reporting practices for water usage. To develop a complete historical record from the WSMP base forecasting year (2011) to 2020, data were obtained from several publicly available data sets (state and federal level), state-level data requests, and individual CWWMG members. The primary data sources are listed below, and their use is described in more detail in the following section.

- North Carolina Department of Water Resources (NCDWR)
- South Carolina Department of Health and Environmental Control (SCDHEC)
- Catawba-Wateree Drought Management Advisory Group (CW-DMAG)
- United States Census Bureau
- North Carolina Office of State Budget and Management, State Demographics Branch
- South Carolina Budget and Control Board

Most North Carolina local government water systems' withdrawals and return data, along with customer count and water use by customer type, is publicly available on NCDWR's website from the Local Water Supply Plans (LWSP). Historical water use and projection estimates were gathered from the information presented in 1997, 2002, and 2007-2020 LWSPs submitted to the NC-DWR by each utility. It should be noted that before 2007, these plans were only required to be submitted to the NCDWR every five years but since 2007 have been required to be submitted on an annual basis.

Discharge monitoring reports (DMRs) for all National Pollutant Discharge Elimination System (NPDES) permitted facilities that are registered to return 0.1 mgd or more were obtained for North Carolina facilities from NCDWR for the years 2006 to 2020. Analysis of the DMRs was used to develop a correlation between the historical water demand data and wastewater discharges.

Water supply and demand data for South Carolina is not readily available in the same format as the LWSPs in North Carolina. Historical data for surface water withdrawals within South Carolina were obtained directly from the entity, in the absence of publicly available information from SCDHEC. An updated list of NPDES permitted facilities, along with DMRs for the years 2012-2020, was obtained from SCDHEC for water discharges into the Basin.

As direct water withdrawers from the Basin, CWWMG members are required to submit annual water use (withdrawal and return) data to the CW-DMAG. The monthly data, often reported at the facility level, was validated with publicly available information.

While data available in the public domain was useful to evaluate historical results and determine baseline projections, it was recognized that greater and more specific information could be obtained directly from individual permitted users. Individual meetings were held with each of these CWWMG members to ensure more accurate historical withdrawal and return data and projections, along with capturing general growth trends in their service area. CWWMG member input was especially valuable as a high percentage of the total water use in the Basin was comprised of organizations with representation in the CWWMG.

3.3.2 Disaggregation of Water Use by User Types

The major residential, commercial, industrial, institutional, wholesale, and other user categories supplied by each public water system were disaggregated, as appropriate, using the available historical information. Current water use factors for residential and other non-industrial demands were then calculated for major water users on a gallon per customer per day (gpcd) basis.

This disaggregation of historical water use by category also allowed for the application of differing AGRs where local/regional factors presented a need for projected growth to be different between categories. This approach was especially valuable to account for booming residential growth as opposed to the acquisition of new large industrial users.

- **Example** - The City of Morganton has experienced increasing demand in the non-residential sectors (commercial, industrial, and institutional) in the past few years and anticipates continued growth in the sectors through the planning horizon. An AGR of 1.0

was applied to non-residential water use projection to account for growth, and an AGR of 0.41 was applied for other categories per Burke County AGR projection calculations.

- **Example:** The Town of Valdese was projected for continued strong growth early (AGR=0.41) in the projection period. Their industries have become increasingly efficient and water use is instead declining. A 0% AGR was applied to conservatively forecast water demand for industrial water users.

3.3.3 Increased Withdrawals and Returns within the Existing Service Areas

The water use factors, described above, and other information obtained were used to project future water demand due to residential population and other non-industrial growth. A similar approach was used to calculate water returns. If a wastewater drainage basin is expected to see population growth, unit factors for wastewater discharges or historical relationships established with water use were determined and appropriate projections made. Consideration was also given to the overall population density of service areas.

For example, population growth rates throughout the projection period (to 2075) were used to project the future population for defined service areas. In the more urbanized areas, an evaluation of population density was completed and a determination was made on its impact on continued population growth.

- **Example** – Catawba County was projected to have a growth of 0.7% AGR through the planning horizon. The City of Hickory is currently experiencing significant near-term growth, specifically related to new industrial users coming online by the first milestone projection year that outpaces the County projection. An AGR of 2.5% was applied early in the projection period (2025-2035) and was reduced to an AGR of 0.7% per Catawba County projections.

3.3.4 Relationship of Future Projections to Permitted Flow

The projections used in this IWRP focus on annual average flows; that is, the average withdrawal or return flow through the course of a 365-day calendar year. Many water users in the Basin have a permitted withdrawal or return flow for their facilities that is granted by state or federal regulatory agencies. These permitted flows were determined at different points in time and based on many environmental and other considerations. This IWRP does not consider permitted flows for water users but makes projections based on expected future demand.

3.4 Industrial User

Industries that utilize waters of the Basin typically do so in one of two ways. The industry may be self-supplied with have a direct withdrawal (or return) into one of the surface water sources (lake, river segment, tributary). Alternatively, an industry may be connected to a public water supply system or wastewater utility. The historical and projected water use or return would, therefore, be captured within the serving system or utility described in the previous section. For the IWRP forecast, industries with direct withdrawal or return flows of greater than 100,000 gpd are presented and summarized in Appendix E.

3.4.1 Data Gathering Process

Similar to the process for collecting historical data for public water supplies and wastewater utilities, information for industrial users required leveraging several publicly available sources. For North Carolina, the NCDWR Water Withdrawal and Transfer Registry (WWATR) reported water withdrawal for non-agricultural entities that use greater than 100,000 gpd. For South Carolina, the water withdrawal dataset was leveraged from SCDHEC. NPDES DMR data was used for any water returns. All information was verified by the CW-DMAG annual data submissions when available.

Attempts were also made for self-supplied industrial users with large withdrawals to discuss their short-term and long-term plans for future water needs, with limited response. Those industries that did respond typically indicated that there are limited plans for expansion and little increase in water withdrawals or returns expected. No industry was able to project needs for the 50-year forecasting period, but some offered insight into shorter-range plans that promoted more accurate projections.

- **Example** – Clariant Corporation Mt. Holly Facility returns have varied from 0.28 to 0.43 mgd between the years 2011 and 2020. Conversations with their staff indicated flows would be treated by Charlotte Water by 2025.

3.4.2 Forecasting Industrial Use

In many cases, industrial withdrawal and return flow projections were evaluated based on the historical Gross State Product (GSP) trend for a particular industry type. These values were typically applied to increases or decreases in industrial production throughout the Basin during the projection period. By evaluating historical trends in water demand and the GSP by industry type, the projections attempted to account for shifts in the regional economy from manufacturing to a more service-based economy. For example, a paper processing company in South Carolina may currently withdraw from and/or return flow into the Basin. According to the South Carolina GSP, paper products manufacturing statewide increased in production at an annual rate of 0.32 percent between the years 1997-2020. Water withdrawals have, therefore, been projected to increase from their current levels using an AGR correlating with each industry sector's annual production rate growth.

It should also be noted that the AGRs produced from the GSP were used only as a foundation to arrive at realistic projections. For instance, many GSPs for industry sectors indicated an annual decline in production for the industry category statewide between 1997 and 2020. However, the application of a negative AGR would result in negative or zero withdrawal flows for manufacturers in that particular industry sector. Therefore, an AGR of 0.00 percent was assigned and water withdrawals were held constant at the base year rates.

- **Example** – For Huffman Finishing, furniture finishing; NC GSP of -8.61 percent from 1997 to 2020 for this industry sector, an AGR of 0.00 was assumed so as not to produce an overall projected decrease in water use.

3.5 Seasonal Trends

Average monthly withdrawal and/or return flowrates were available for most users and was used to calculate seasonal trends in water use. These coefficients were then used to estimate the monthly flow rate for any month in future years. For each user, the average annual monthly flows were divided by the average annual flow from 2006 to 2020 to obtain monthly coefficients.

- **Example** – The 2006 to 2020 flow data for the City of Belmont water treatment plant indicated an annual average withdrawal flow of 1.92 mgd. Over the same period, The average withdrawal for the month of November was 1.84 mgd. Therefore, the November monthly coefficient for the City of Belmont water treatment plant was calculated to be 0.95. Multiplying this coefficient by any projected future annual average withdrawal rate will yield the average November withdrawal rate for that year for this user.

Those users whose monthly flow data was not available were assumed to have no monthly variation withdrawals and/or returns (i.e., all monthly coefficients were set to equal to 1.00).

4 Deterministic Water Withdrawal and Return Projections

Annual average withdrawal and return rate projections were completed for the watersheds in ten-year increments from the Base Year (average of 2006 to 2020) through 2075. The following section presents an aggregate summary of projected water withdrawals, water returns, and net withdrawals for the four major user categories developed using the methods and assumptions described in the previous section.

Net withdrawals are defined as the difference between the amount of water withdrawn within a particular watershed and the amount of water returned within a particular watershed. It is possible to have a negative net outflow (consequently, a net inflow) of water within a particular watershed if the amount of water returned is greater than that withdrawn. Typically, this result occurs due to a portion of the net withdrawal from an upstream watershed being returned within the Catawba-Wateree Basin to a downstream watershed.

A more detailed summary of the water users' withdrawal and return flow projections is included in Appendix A.

Additionally, the IWRP projections were compared to past projections generated for the 2006 WSS and the 2014 WSMP. The purpose of this step was to detail key differences in information as more than 14 years have passed between the three studies and the Basin has experienced shifts in climate (including the drought of record), major economic shifts, and population booms which have greatly affected water consumption rates.

4.1 Agriculture & Irrigation

Figure 4-1 presents the historical and forecasted water withdrawals and returns from 2006 through 2075. Table 4-1 provides the forecasted net A&I water withdrawals for the Base Year, 2045, and 2075 milestone years in the planning horizon by watershed. Figure 4-2 presents the

historical and forecasted water withdrawals from 2006 through 2075 along with a comparison to the 2006 WSS and 2014 WSMP forecast. These A&I summaries compile Crop and Livestock watering, Golf Course, and Lakeside Irrigation data.

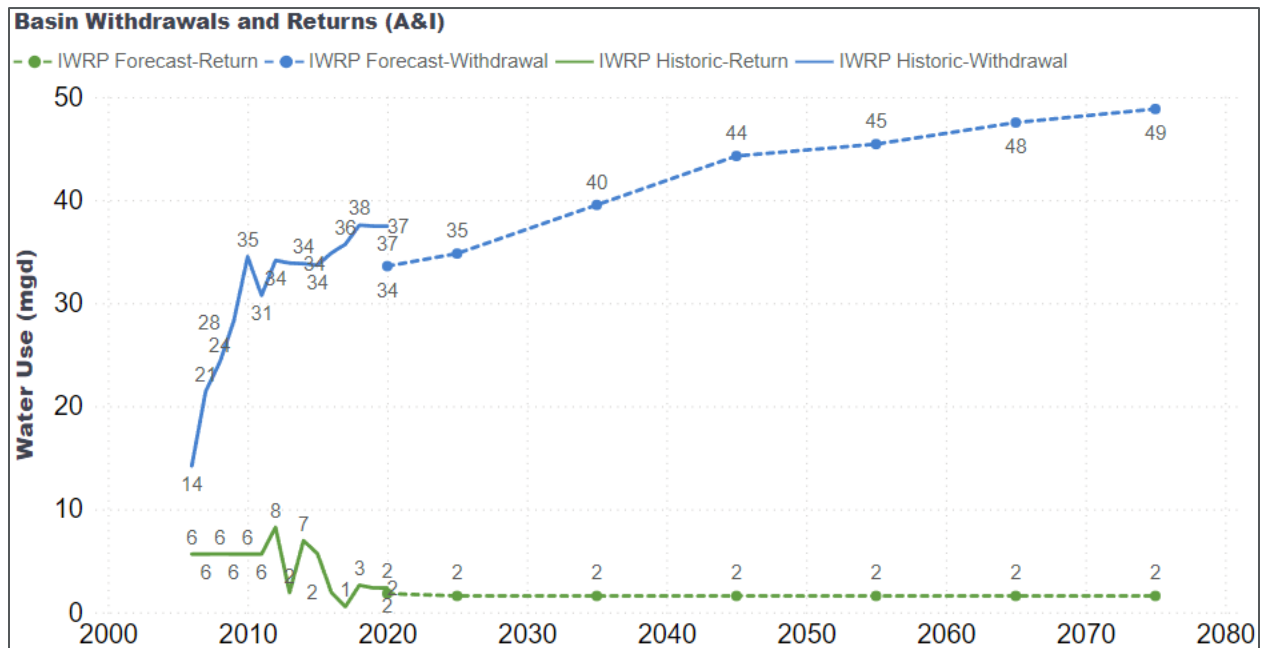


Figure 4-1 Forecasted A&I Water Withdrawals and Returns, 2006-2075 (mgd)

Table 4-1 Forecasted Net A&I Water Withdrawals (mgd) by Watershed

Watershed	Base Year	2045	2075	Change from Base Year to 2075
Lake James	4.6	6.6	6.8	2.2
Lake Rhodhiss	10.0	12.6	12.7	2.8
Lake Hickory	2.7	3.3	3.8	1.2
Lookout Shoals Lake	1.1	1.2	1.2	0.1
Lake Norman	2.9	4.4	6.8	3.8
Mountain Island Lake	0.3	0.5	0.8	0.4
Lake Wylie	5.1	6.5	7.7	2.6
Fishing Creek Reservoir	3.6	4.7	4.3	0.6
Great Falls-Dearborn Reservoir	0.1	0.2	0.3	0.1
Cedar Creek Reservoir	0.1	0.2	0.3	0.1
Lake Wateree	0.2	0.6	1.1	0.9
Below Wateree	1.0	1.8	1.6	0.6
Total (mgd)	31.8	42.7	47.3	15.5

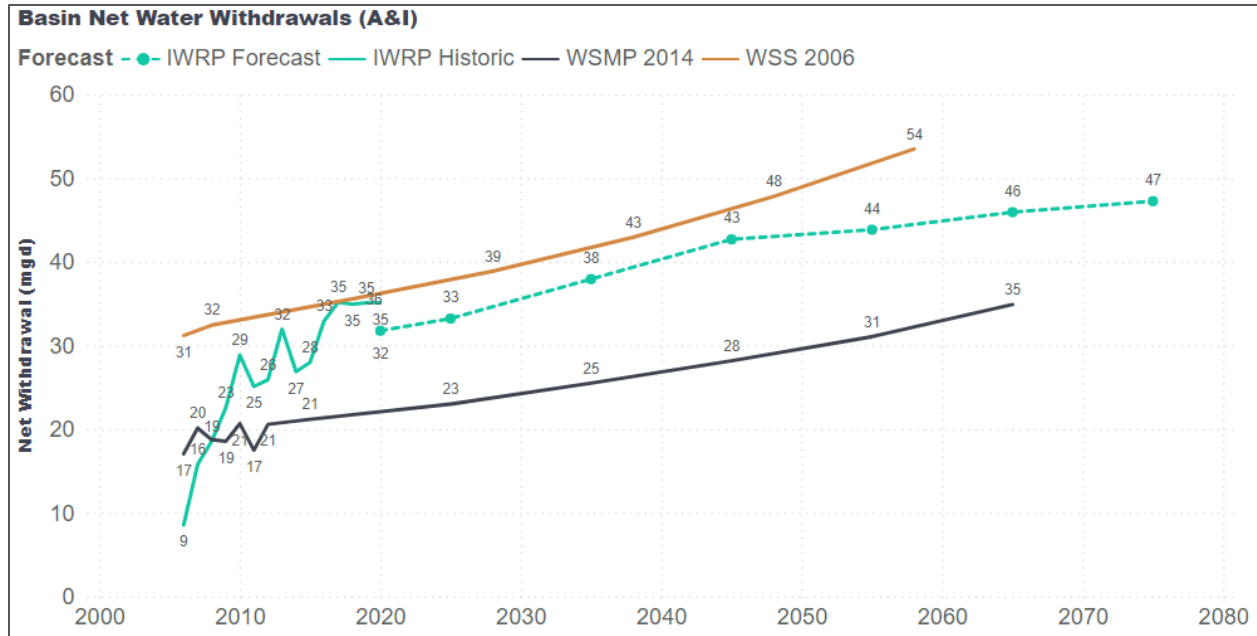


Figure 4-2 Forecasted A&I Water Withdrawals, 2006-2075 (mgd)

4.1.1 Forecast Comparison

The difference between the WSMP and WSS A&I water use projections was primarily the result of the following three changes in methodology:

- Crop and Livestock water use was projected using the greatest water use of the historical data, similar to the IWRP methodology
- Golf Course water use was projected using U.S. Census Golf Course AGRs instead of projected population AGRs.
- The WSMP included Lakeside Irrigation water use projections

The IWRP A&I projections notably differ from the 2014 WSMP and are typically aligned with the 2006 WSS. Since the WSMP and IWRP had similar projection methodologies, these differences are primarily on the basis of planning. These IWRP basis of planning updates included an expanded Basin boundary, including over 850 square miles in the Below Wateree watershed. The additional area dramatically impacted the Crop and Livestock information. Additionally, the basis of planning of the WSMP report relied on the 2005 USGS reports, while the IWRP leveraged additional data from the 2010 and 2015 reports. The additional reports show a significant increase in crop and irrigation use in multiple counties, where Burke and Caldwell County saw some of the most dramatic shifts.

The growth in demand is also relatively constant in the previous forecasts due to the AGR method applied in the WSS and the maximum historical (1997 to 2015) Crop and Livestock use (by county and watershed) beginning in the first projection year (2015) for the WSMP. The IWRP forecast instead applied the maximum historical use beginning in 2045, which causes a steeper growth in demand from the Base Year projection to 2045.

Detailed A&I water withdrawal projection analyses are included in Appendix E.

4.2 Thermal-Electric Power

Table 4-2 provides the forecasted TEP net water withdrawals for the Base Year, 2045, and 2075 milestone years in the planning horizon by watershed. Figure 4-3 presents the historical and forecasted withdrawals from 2006 through 2075 along with a comparison to the 2006 WSS and 2014 WSMP forecast.

It should be noted that, for Duke Energy's facilities, the net withdrawal or consumptive use is reported only as a water withdrawal. This approach was used in place of showing both a water withdrawal and return since these rates are higher than any of the other users in the Basin and occur within a single site's footprint. Historical water withdrawals and forecasts from the 2006 WSS and 2014 WSMP reported Duke's usage using this approach.

Table 4-2 Forecasted Thermal-Electric Power Net Water Withdrawals (mgd) by Watershed

Sub-basin	Base Year	2025	2035	2045	2055	2065	2075
Lake James	-			-			-
Lake Rhodhiss	-			-			-
Lake Hickory	-			-			-
Lookout Shoals Lake	-			-			-
Lake Norman	30.0	30.0	36.5	40.5	47.0	52.0	52.0
Mountain Island Lake	-			-			-
Lake Wylie	37.0	33.0	33.0	33.0	33.0	33.0	26.0
Fishing Creek Reservoir	-	-	-	-	-	-	-
Great Falls-Dearborn Reservoir	-	-	-	-	-	-	-
Cedar Creek Reservoir	-	-	-	-	-	-	-
Lake Wateree	-	-	6.5	19.5	26.0	26.0	26.0
Below Wateree	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Total (mgd)	74.9	70.9	83.9	100.9	113.9	118.9	111.9

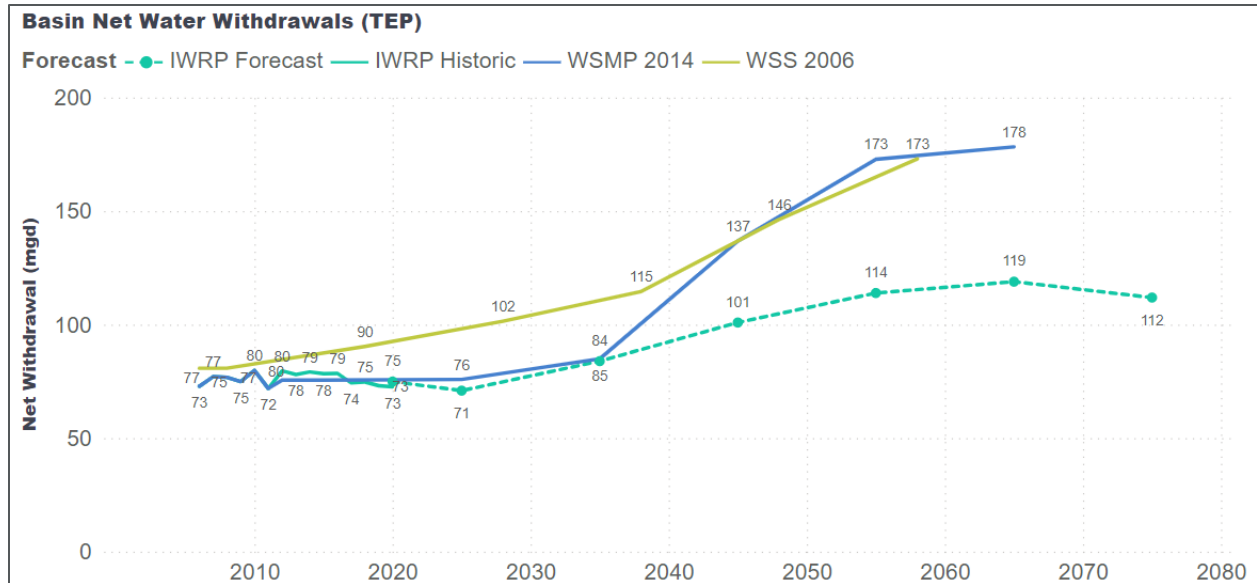


Figure 4-3 Forecasted Thermal-Electric Power Net Water Withdrawals, 2006-2075 (mgd)

4.2.1 Forecast Comparison

The IWRP thermal-electric power projections are significantly different from the previous forecasts, which were largely aligned towards the end of their respective forecasting horizons. These changes from the previous studies are due to the expansion of the Basin boundary and shifts in Duke Energy's plans for future facilities.

The changes in boundary definition added a power generation plant owned by Dominion Energy, previously known as South Carolina Electric & Gas. Historical water withdrawal data was provided by SCDHEC from 2012 to 2020. During that period, the facility saw a decrease in demand from 12 mgd to 6.5 mgd.

The primary drivers in the decrease in net water withdrawals are changes to Duke Energy's base projections in facility demand. These projections for future operations of energy production facilities within the Basin are driven by alignment with technological advances in power generation, the ability to distribute power production and transmission regionally, and Duke Energy's nationwide goal to achieve net-zero carbon emissions by 2050.

The Project's current nuclear stations will reach a regulatory end of life around 2060:

- McGuire Nuclear Station is currently licensed through 2041, and Duke Energy plans to apply for license renewal that would decommission that facility by 2061.
- Catawba Nuclear Station is currently licensed through 2043 and Duke Energy plans to apply for a license renewal. If renewed, the first unit would begin decommissioning in 2063.

The previous 2014 WSMP included the construction of two new, traditional nuclear stations. Duke Energy is now planning for the development of smaller, modular nuclear reactors – a yet to be developed, but anticipated future technological advancement for power generation in the

region. These reactors would provide a comparable amount of energy and water usage, but they would instead be distributed across many smaller sites because Duke would be able to generate and transmit energy from surrounding areas, even other states, to support customers within the Basin.

4.3 Public Water Suppliers & Wastewater Utilities

CWWMG members reviewed and provided feedback to draft projections developed using the methodology described in Section 3.3. Forecast revisions were made, as appropriate, and Table 4-3 provides the final forecasted net PW/WU water withdrawals for the Base Year, 2045, and 2075 milestone years in the planning horizon by watershed. Figure 4-4 presents the historical and forecasted water withdrawals from 2006 through 2075 along with a comparison to the 2006 WSS and 2014 WSMP forecast. Figure 4-5 presents a comparison of North Carolina PW/WU water withdrawal projections developed for the IWRP and withdrawals projections reported on LWSP planning.

Table 4-3 Forecasted Public Water Suppliers & Wastewater Utilities Water Net Withdrawals by Watershed

Watershed	Base Year	2045	2075	Change from Base Year to 2075
Lake James	1.1	1.2	1.3	0.3
Lake Rhodhiss	8.3	11.7	14.0	5.7
Lake Hickory	7.3	13.0	16.0	8.7
Lookout Shoals Lake	2.7	3.5	4.8	2.0
Lake Norman	24.4	40.9	64.4	40.0
Mountain Island Lake	109.3	146.4	223.9	114.5
Lake Wylie	6.5	4.8	14.0	7.5
Fishing Creek Reservoir	-66.4	-98.7	-139.6	-73.1
Great Falls-Dearborn Reservoir	-1.0	-1.5	-2.5	-1.4
Cedar Creek Reservoir	-0.7	-0.8	-1.0	-0.3
Lake Wateree	4.4	10.6	15.8	11.4
Below Wateree	-8.7	-10.9	-12.0	-3.4
Total (mgd)	87.2	120.1	199.1	111.9

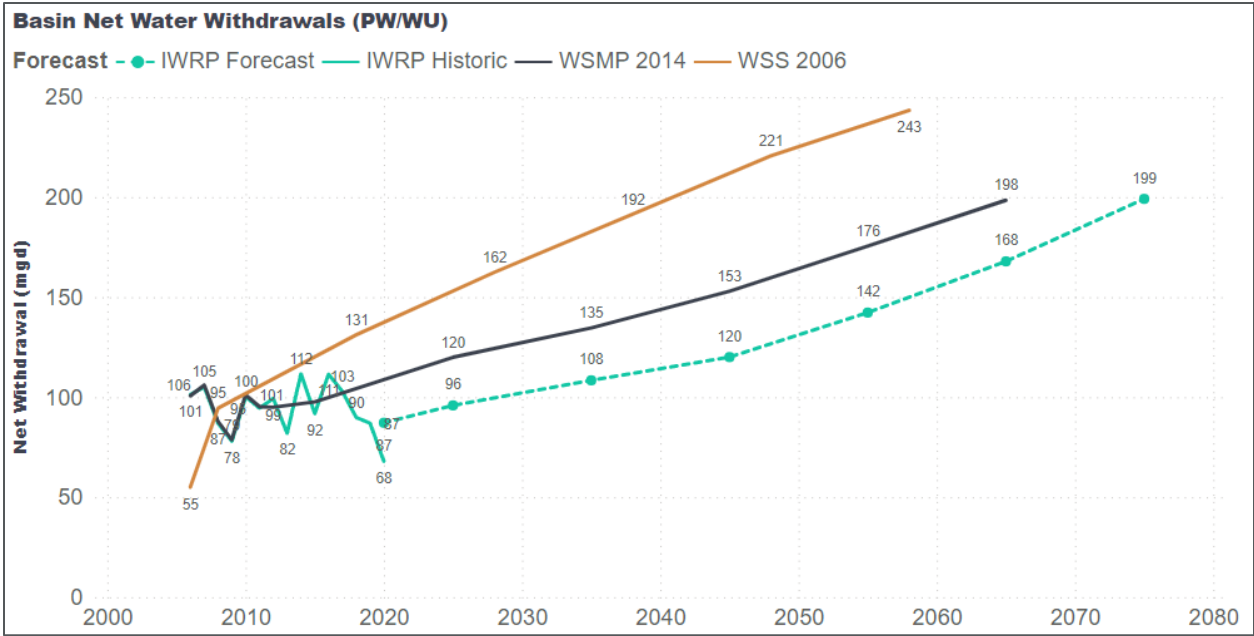


Figure 4-4 Forecasted Public Water Suppliers & Wastewater Utilities Net Water Withdrawals, 2006-2075 (mgd)

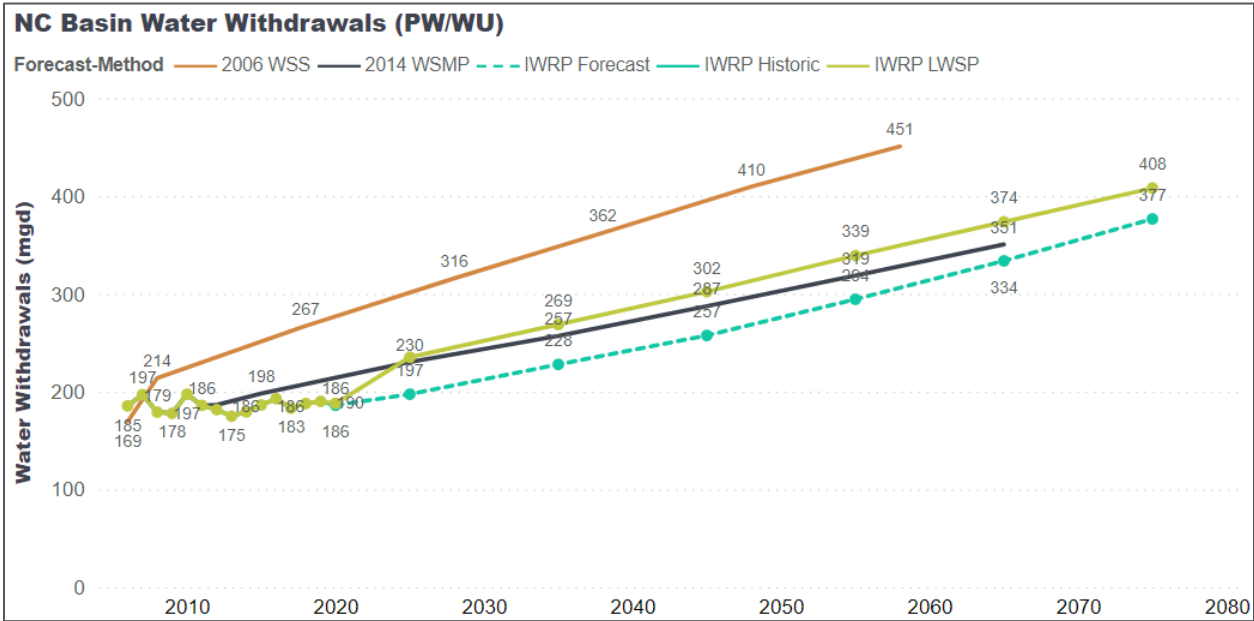


Figure 4-5 Comparison of Forecasted North Carolina Public Water Suppliers & Wastewater Utilities Water Withdrawals to Reported LSWP Planning Projections, 2006-2075 (mgd)

4.3.1 Forecast Comparison

The IWRP projection for PW/WU users within the entire Basin largely aligns with the previous WSMP plan. While the updated forecast includes nine additional years of data (2011 to 2020) indicating water demand below the WSMP projections, as shown in Figure 4-4, the growth rate in IWRP forecasted demand is slightly higher. This can be attributed to significant regional growth in both the residential and industrial sectors throughout the Basin.

When compared to the LSWP planning projections, the forecasted withdrawals from North Carolina PW/WUs follows a similar growth rate in demand. A key difference begins in the first milestone forecasting year, where wholesale demands in the LWSP projections were set to the maximum contractual amount for each PW/WU.

4.4 Industrial User

Table 4-4 provides the forecasted net industrial water withdrawals for the Base Year, 2045, and 2075 milestone years in the planning horizon by watershed. Figure 4-6 presents the historical and forecasted water withdrawals from 2006 through 2075 along with a comparison to the 2006 WSS and 2014 WSMP forecast.

Table 4-4 Forecasted Industrial User Net Water Withdrawals (mgd) by Watershed

Watershed	Base Year	2045	2075	Change from Base Year to 2075
Lake James	-0.7	-0.9	-1.0	-0.3
Lake Rhodhiss	-1.1	-1.4	-1.8	-0.7
Lake Hickory	<-0.1	<-0.1	<-0.1	-
Lookout Shoals Lake	-0.3	-0.3	-0.3	-
Lake Norman	-	-	-	-
Mountain Island Lake	-	-	-	-
Lake Wylie	0.2	1.4	3.0	2.8
Fishing Creek Reservoir	3.2	0.5	-3.1	-6.3
Great Falls-Dearborn Reservoir	-	-	-	-
Cedar Creek Reservoir	-	-	-	-
Lake Wateree	-	-	-	-
Below Wateree	-0.8	-0.8	-0.7	0.1
Total (mgd)	0.5	-1.4	-4.0	-4.5

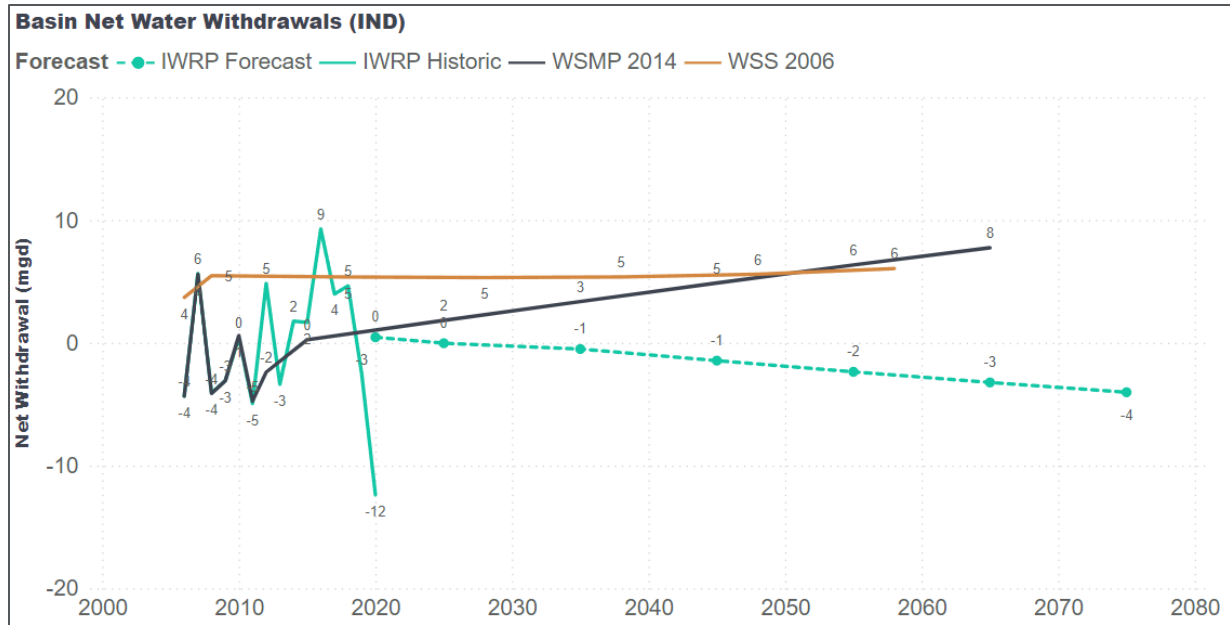


Figure 4-6 Forecasted Industrial User Net Water Withdrawals, 2006-2075 (mgd)

As the net withdrawal summary suggests in Table 4-4, industrial users return much of the water to a surface water source within the Basin. Additionally, many industries may discharge water to a surface water source, while withdrawing from groundwater sources or purchasing water from a public water supply system, thereby resulting in an overall negative net withdrawal from surface water (discharge more surface water than they withdraw). As a result, the projections indicate that direct industrial users (not including industries who purchase from public water supply systems) currently discharge more water into the Basin than they withdraw. Figure 4-7 presents the historical and forecasted water withdrawals and returns.

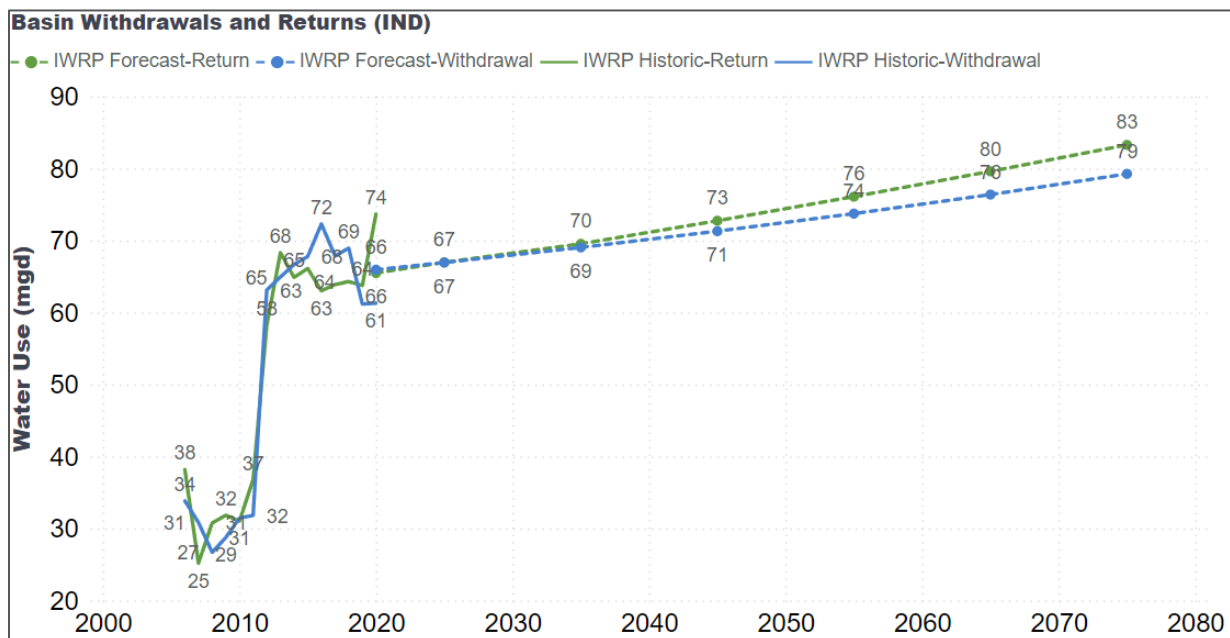


Figure 4-7 Forecasted Industrial User Water Withdrawals and Returns, 2006-2075 (mgd)

4.4.1 Forecast Comparison

Similar to the A&I forecast, the projections for industrial users are largely impacted by the expanded Basin boundary. Historical data for the new entities, including the International Paper Company (previously Eastover Mill), INVISTA Sarl Chemical Plant, and COVIA (previously Unimin Corporation) were included beginning from 2012 to 2020, as shown in Figure 4-5. While the historical data illustrates a large increase before 2020, the rate of water demand growth through the forecasting horizon is similar to that of the previous forecasts.

The WSMP also included placeholders for future industrial growth in each watershed. Since the development of the last forecast, there has been a shift away from new industrial users directly withdrawing and treating their water to instead favoring a development location based on access to potable water from public water suppliers and/or wastewater utilities. Because of this shift, much of the anticipated industrial growth is incorporated into the PW/WU projections.

4.5 Basin-wide Water Withdrawal and Return Projections

Table 4-5 presents the overall net withdrawal for the entire Basin, which is expected to increase to approximately 354 mgd by the year 2075. Figure 4-8 illustrates the withdrawals and returns based on the IWRP forecast methodology and Figure 4-9 provides a comparison of the Catawba-Watauga River Basin net withdrawal projections made as part of this IWRP with those developed as part of the 2006 WSS and 2014 WSMP.

Figure 4-10 and Figure 4-11 depict the net withdrawal for each reservoir's watershed for both the Base Year and the projected 2075 value. Figure 4-12 and Figure 4-13 summarize the net withdrawal for water user categories in each watershed for the base year and the year 2075, respectively.

Table 4-5 Projected Annual Average Withdrawal, Return and Net Withdrawal Rates by Watershed (in mgd)

Watershed	Base Year	2025	2035	2045	2055	2065	2075
Withdrawals							
Lake James	7	8	8	9	9	9	10
Lake Rhodhiss	30	32	34	37	38	40	42
Lake Hickory	15	17	22	23	25	27	28
Lookout Shoals Lake	4	4	5	5	6	6	7
Lake Norman	58	62	76	87	103	117	124
Mountain Island Lake	115	118	134	154	177	203	234
Lake Wylie	72	71	77	84	91	100	103
Fishing Creek Res.	56	61	69	77	87	99	113
Great Falls-Dearborn Res.	<1	<1	<1	<1	<1	<1	<1
Cedar Creek Res.	<1	<1	<1	<1	<1	<1	<1
Lake Wateree	5	7	16	31	39	40	43
Below Wateree	44	45	47	49	51	53	55
Subtotal	406	426	489	556	626	695	760
Returns							
Lake James	2	2	2	2	2	3	3
Lake Rhodhiss	13	12	13	14	15	16	17
Lake Hickory	5	5	6	7	7	8	9
Lookout Shoals Lake	1	1	1	1	1	1	1
Lake Norman	1	1	1	1	1	1	1
Mountain Island Lake	5	6	6	7	8	8	9
Lake Wylie	24	30	33	38	43	47	52
Fishing Creek Res.	116	121	145	171	196	223	252
Great Falls-Dearborn Res.	1	1	1	2	2	2	2
Cedar Creek Res.	1	1	1	1	1	1	1
Lake Wateree	<1	<1	<1	<1	<1	<1	<1
Below Wateree	45	47	49	51	54	56	59
Subtotal	212	226	259	294	329	366	405
Net Withdrawals							
Lake James	5	5	6	7	7	7	7
Lake Rhodhiss	17	20	21	23	24	24	25
Lake Hickory	10	12	15	16	17	19	20
Lookout Shoals Lake	4	4	4	4	5	5	6
Lake Norman	57	61	76	86	102	116	123
Mountain Island Lake	110	112	128	147	169	195	225
Lake Wylie	49	41	44	46	49	53	51
Fishing Creek Res.	-60	-59	-76	-93	-109	-124	-138
Great Falls-Dearborn Res.	-1	-1	-1	-1	-2	-2	-2
Cedar Creek Res.	-1	-1	-1	-1	-1	-1	-1
Lake Wateree	5	7	16	31	39	40	43
Below Wateree	-1	-1	-2	-2	-3	-3	-3
Subtotal	194	200	230	262	298	330	354

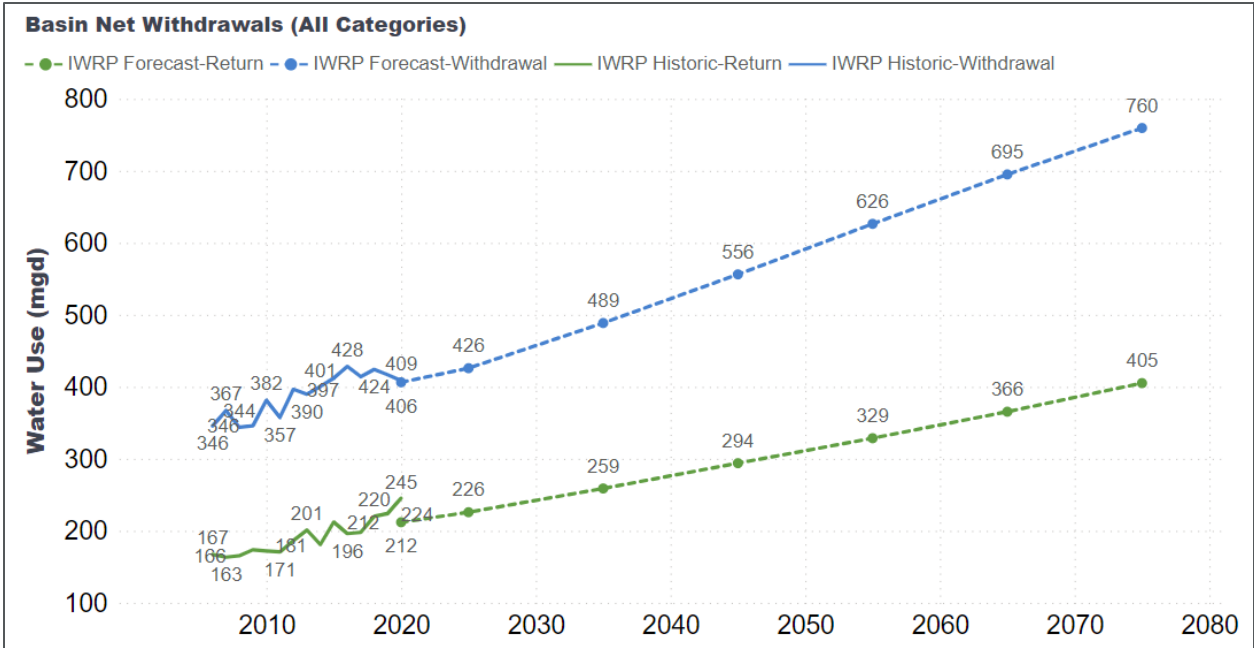


Figure 4-8 Catawba-Wataree Basin Water Withdrawals and Returns, 2006 to 2075 (mgd)

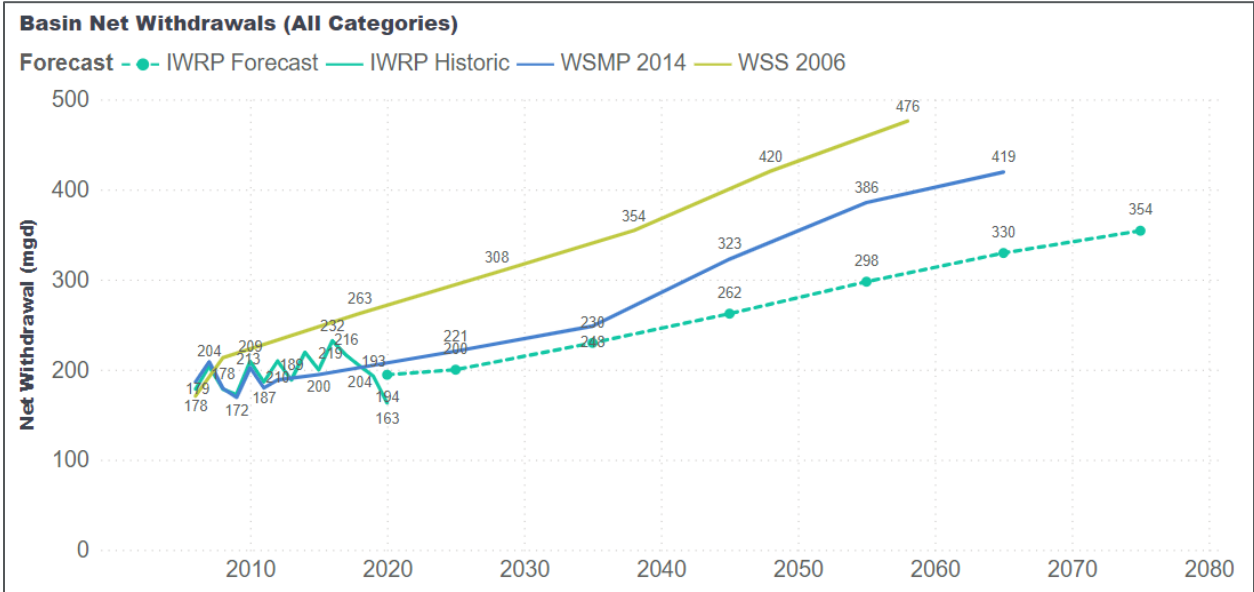


Figure 4-9 Catawba-Wataree Basin Water Net Withdrawals Forecast Comparison, 2006-2075 (mgd)

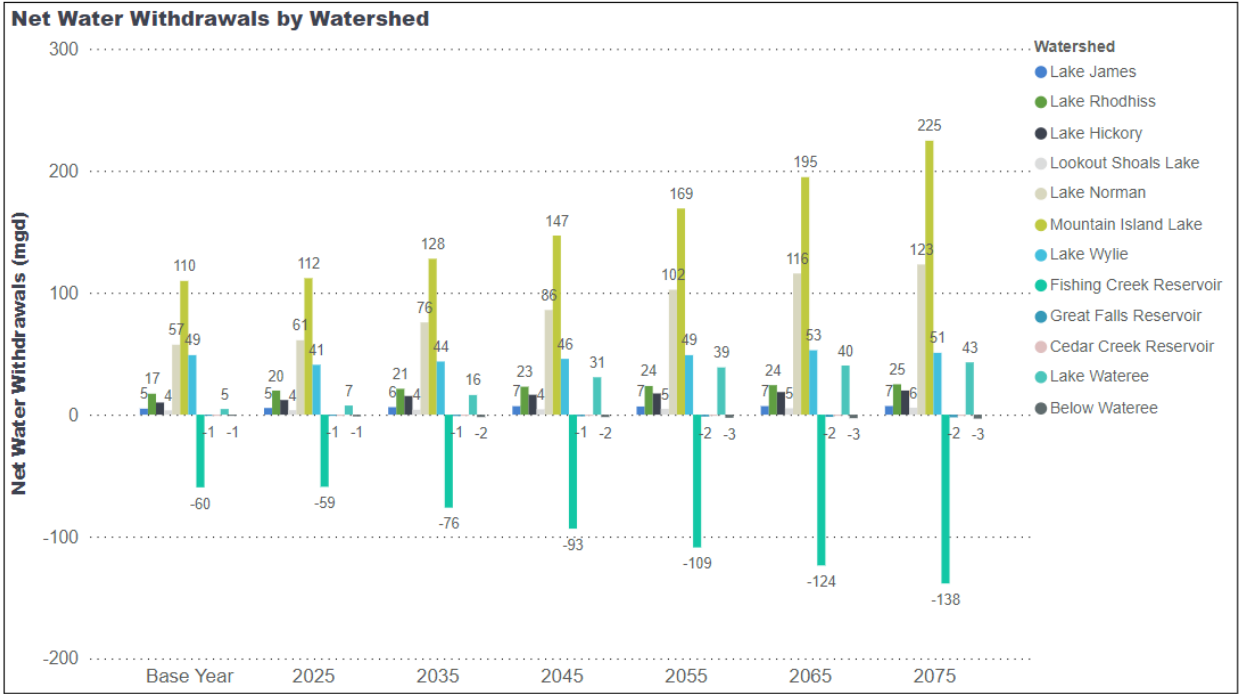


Figure 4-10 Net Withdrawal Projections for Catawba-Wateree Watersheds, Base Year to 2075 (mgd)

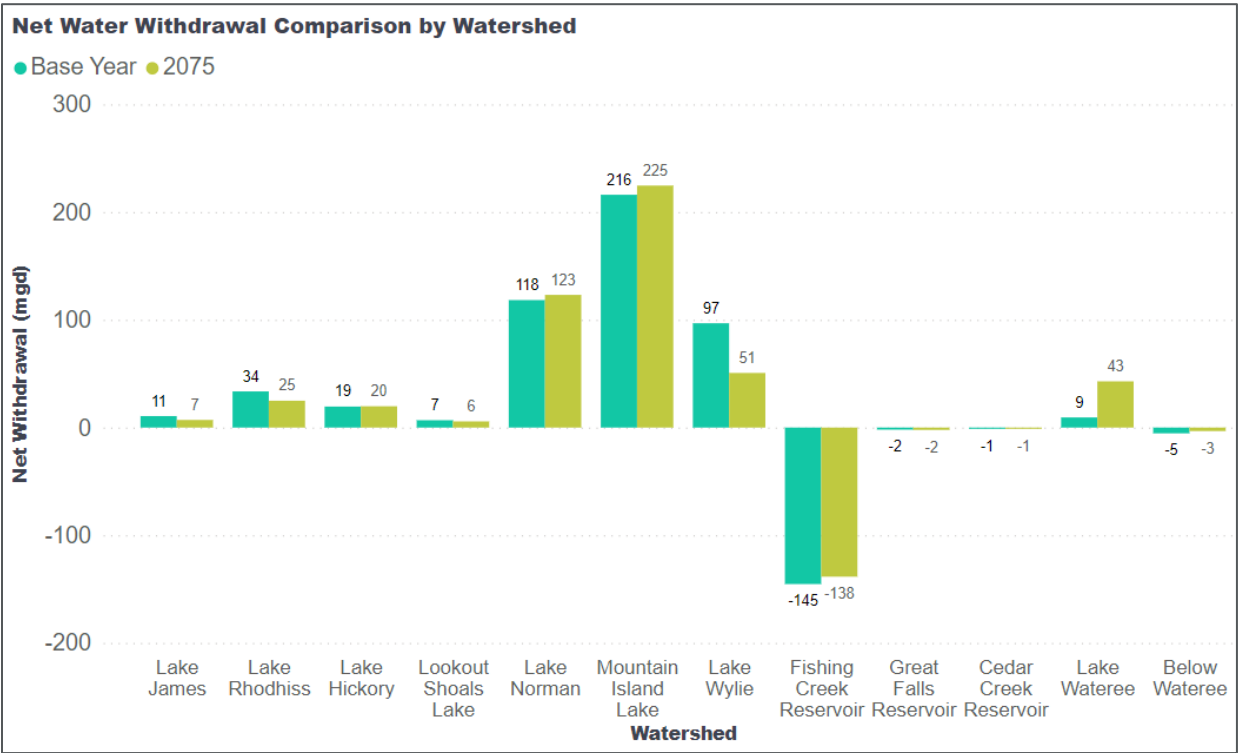


Figure 4-11 Base Year vs. 2075 Net Withdrawal Comparison by Watershed (mgd)

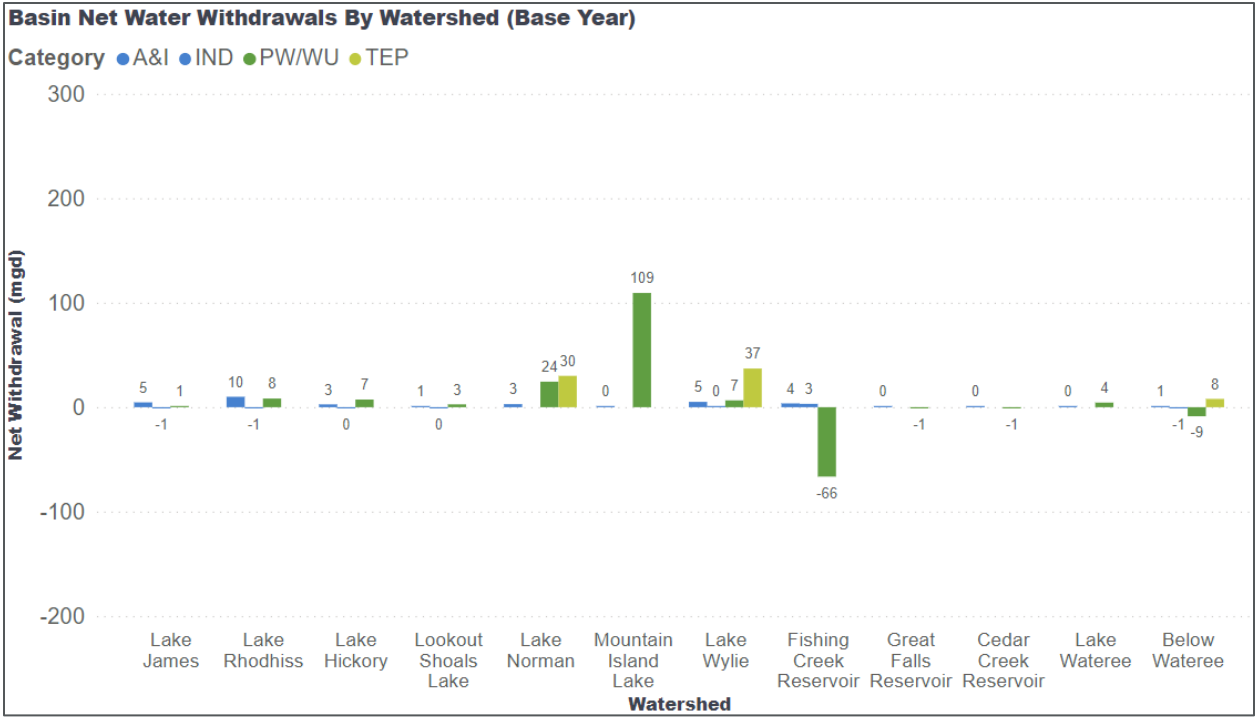


Figure 4-12 Base Year Projected Net Withdrawal for Water User Categories by Watershed (mgd)

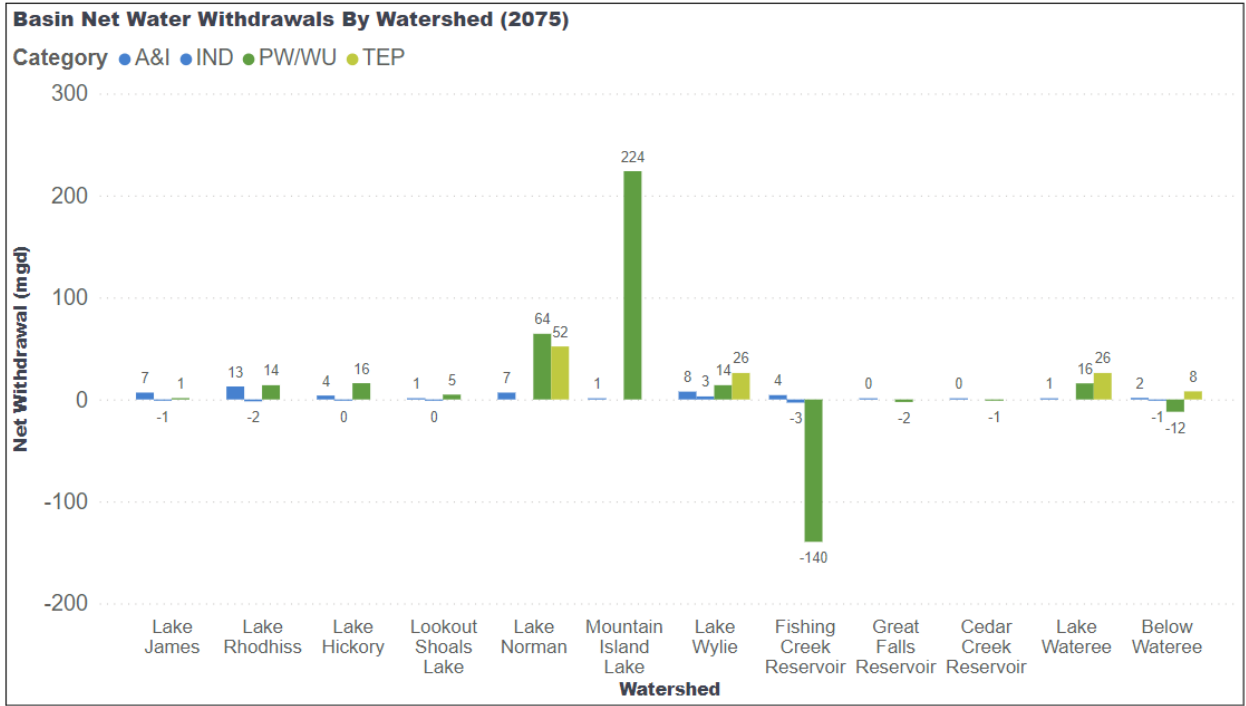


Figure 4-13 2075 Projected Net Withdrawal for Water User Categories by Watershed (mgd)

5 Inter-Basin Transfers

Different organizations, regulatory agencies, and individuals often have different interpretations of Inter-Basin Transfers (IBTs). For the IWRP, IBTs are defined as the transfer of surface water that is withdrawn from anywhere within the Catawba-Wataree River Basin and is returned to a watershed outside of the Catawba-Wataree River Basin.

Using this definition, current and projected water withdrawals from the Catawba-Wataree Basin that transfer water to another river basin where it is discharged as wastewater, utilized for residential irrigation, or disposed of via septic tanks would be included. Quantifying this transfer of water, however, is difficult, based on available data.

Significant current IBTs projected as part of this IWRP are outlined in Table 5-1 along with information on the permitted limits regarding the amount and basis (maximum day or maximum month average day (MMAD)) along with flow direction.

Table 5-1 Significant IBTs 2020

Agency	2020 IBT Est. (mgd)	Certificate Transfer Limit (mgd) and Basis	Comment
City of Statesville	4.83	15/ max day	Intake in Lookout Shoals, return flow to the Yadkin River.
Charlotte Water	17.4	33/ max day	Intakes in Mt. Island and Lake Norman, return flows to the Yadkin River.
Town of Mooresville	8.0	9.54/ max day	Intake in Lake Norman and return flows to the Yadkin River.
Concord/ Kannapolis/ Cabarrus County	-	10/ max day	IBT from the Catawba River (e.g., Lake Norman) to return flow to the Yadkin River.
Union County/Lancaster County	2.71	Union County: 5 /max month average day (grandfathered) Lancaster & Union County: 20 max month average day	Estimated IBT from CRWTP into Lancaster and Union Counties returned to the Yadkin River.
Chester Metropolitan District	1.13	9.2/ max day	Estimated with return flow to the Broad River Basin.
Total	34.0		

6 Probabilistic Forecast Analysis

The starting point of the forecasting process for the IWRP was a deterministic forecast methodology, which is based on a number of single fixed-point estimate assumptions and results in a single estimate of future conditions.

Uncertainty is inherent in any forecast and the net water demand for the CWWMG study area over the next 50+ years will depend on a number of conditions that may vary from the assumptions based on historical patterns. Historically, regulatory changes, technological

advancement, increased population and growth within the Catawba-Wateree Basin, shifts from a manufacturing to a service-based economy, conservation, changes in water rates, and other changes have helped redefine the economics of water supply and wastewater treatment. Through the next 50 years, these continued changes, coupled with the impacts of aging infrastructure and climate variability, may again redefine the economics and landscape of water use in the region.

Therefore, probabilistic analysis was integrated to represent a likely range of values instead of single fixed-point estimate assumptions. This methodology provides the ability to incorporate uncertainty into the forecast, as well as understand the variability in the long-term net withdrawal trends.

6.1 Approach Overview

A Monte Carlo simulation was used to add a probabilistic analysis to the deterministic forecast. A Monte Carlo simulation allows us to explore possible outcomes to assess the impact of uncertainty in analyses and decision-making. Uncertainty can be related to things that are unknown, conditions in the future, or known limitations in the quality of input data.

6.1.1 What is Monte Carlo simulation?

Monte Carlo simulation is a computerized mathematical technique in which a large number of simulations are run using random quantities for an uncertain variable and looking at the distribution of results to infer which values are most likely. The technique furnishes a decision-maker with a range of possible outcomes and the probabilities they may occur. It shows the range of possibilities, along with possible outcomes for middle-of-the-road scenarios.

6.2 Application for the IWRP

The fixed-point estimates of future water use were with probability-based distributions using Monte Carlo simulation to incorporate uncertainty into the forecast expand understanding of the variability in the potential forecast outcomes.

The Excel add-in @Risk was used to replace the single-point estimate assumptions with a probabilistic variable (a range of values with associated probabilities of occurrence) within the deterministic forecast model. The new forecast model then runs all calculations up to 10,000 times to develop a range of forecasts with an associated probability of occurrence, providing a probabilistic forecast.

Given the granularity of the water demand data, inter-annual variation in water demand and return data over the past 18 years was analyzed. The year-to-year variation captures the compounding influence of factors described above that impacted historical water demand and are expected to impact future net water withdrawals. A unique probabilistic variable distribution was developed for each of the over 200 facility-level water withdrawal or water return data evaluated within the Basin. The maximum variation was set to +/-200 percent variation each year.

For example, the Charlotte Water Lee S. Dukes Water Treatment Plant (Facility NWN-1) saw a range of a 25% decrease to a 50% increase in interannual water demand from 2006 to 2020.

Figure 6-1 presents the distribution of variation, or drift rate, leveraged to forecast the facility's future water demand.

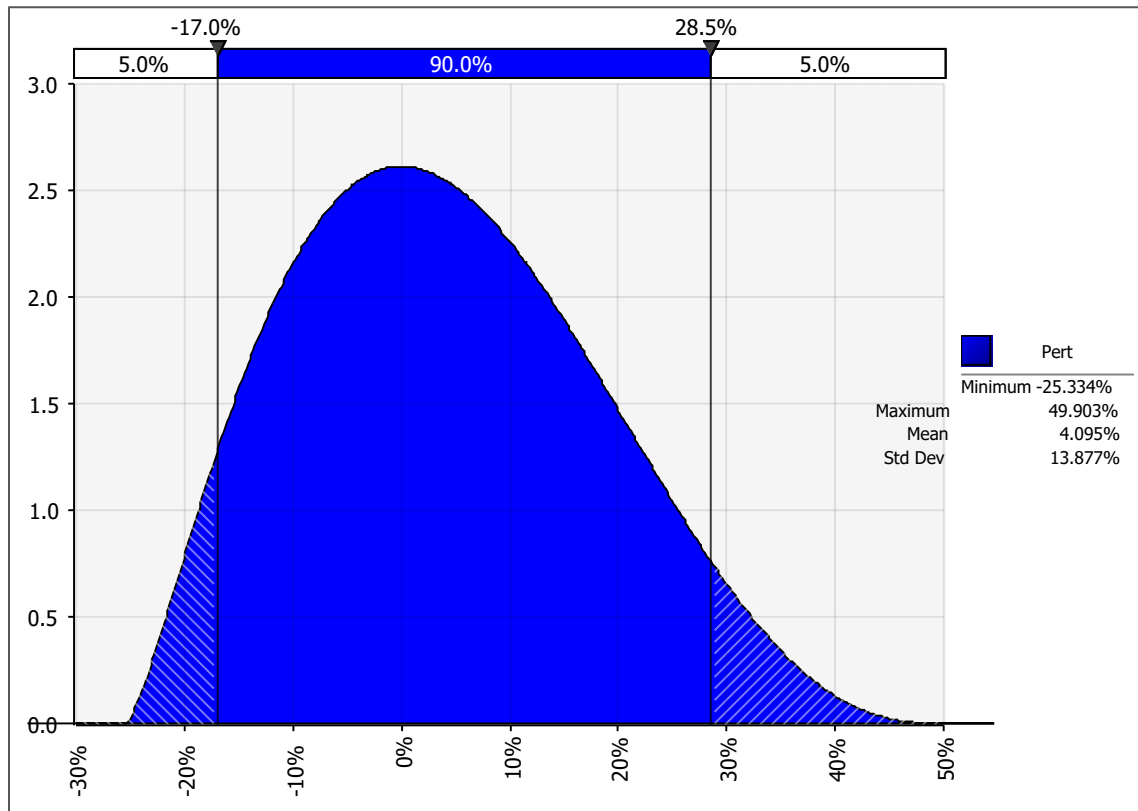


Figure 6-1 Charlotte Water's Lee S. Duke WTP 2006 to 2020 Interannual Variation Distribution

The water withdrawals or water returns were calculated using the following equation:

$$\text{Water Use}_{P(n)} = \text{Water Use}_{D(n)} + \left(\text{Water Use}_{D(n)} \times \left[\frac{(\text{Water Use}_{D(n)} - \text{Water Use}_{D(n-1)})}{\text{Water Use}_{D(n-1)}} \times (1 + \text{Drift Rate}) \right] \right)$$

Where 'P' and 'D' represent the probabilistic or deterministic values and "n" represents the forecast year. The formula is applied for each year in the forecasting horizon.

6.3 Probabilistic Forecast Results

Figure 6-2 presents five forecasts for the Basin net water withdrawal forecast: the 95th percentile, the 75th percentile, the 50th percentile (median), the 25th percentile, and the 5th percentile forecast. The 50th percentile forecast represents a reasonable probability forecast, with equal chances of actual withdrawals being above or below the forecast and is not equivalent to the deterministic forecast. The boundaries of the forecasts represent the cumulative effect of the less probable scenarios related to the considered inter-annual variation, which results in net water withdrawals being much less likely to be above the 95th percentile or below the 5th percentile. That means that there is a 90 percent chance that the long-term withdrawal trend will be somewhere in between these two extremes, and these ranges provide a

valuable perspective on the potential impacts of reliably meeting future treatment capacity needs.

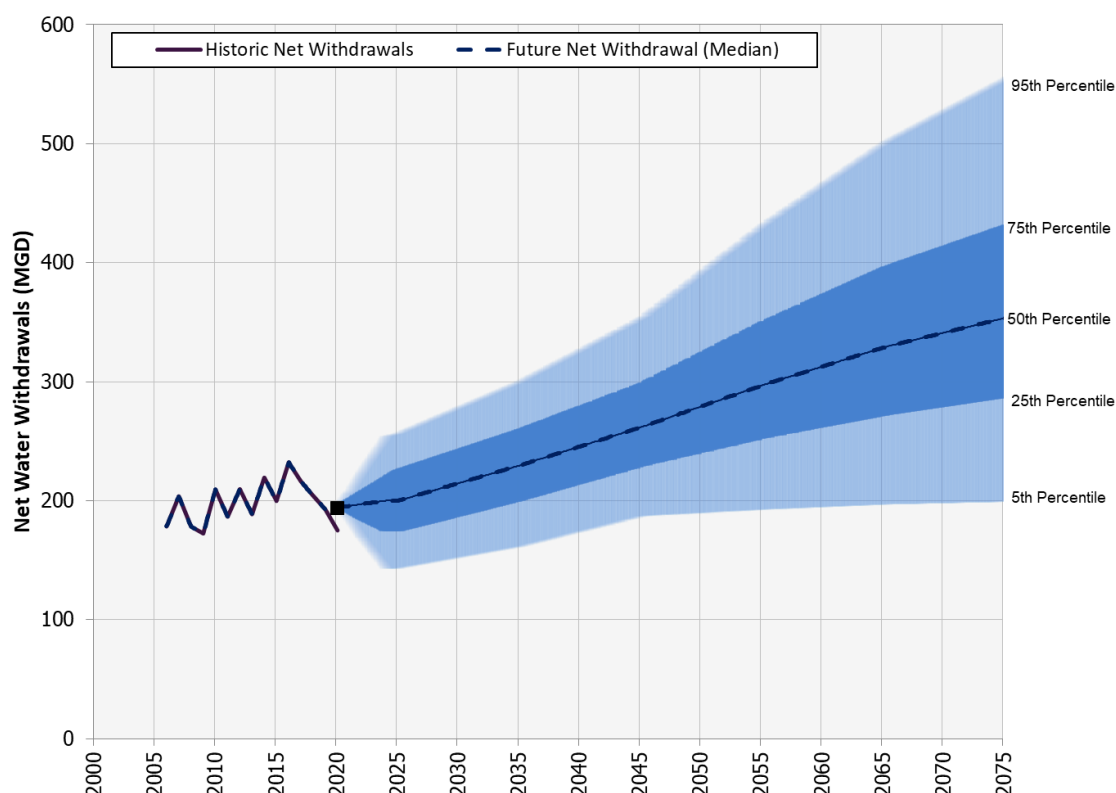


Figure 6-2 Catawba-Wateree Basin Net Water Withdrawals Probabilistic Forecast, 2006-2075

Note: probabilistic forecast modified based on changes to Duke Energy's forecast and net withdrawal uncertainty reassessed based on updated demand profiles.

Table 6-1 includes the 25th, 50th, and 75th percentile forecast milestone forecast years 2025 through 2075 along with the Base Year for reference. Note that no variability was applied to historic net water withdrawals values.

Figure 6-2 and Table 6-1 show historical and forecasted values largely driven by major shifts in TEP water withdrawal projections. The boundaries between the 5th and 95th percentile become increasingly larger through the planning horizon, which parallels increasing uncertainty on the influence of various drivers in net water withdrawals throughout the Basin.

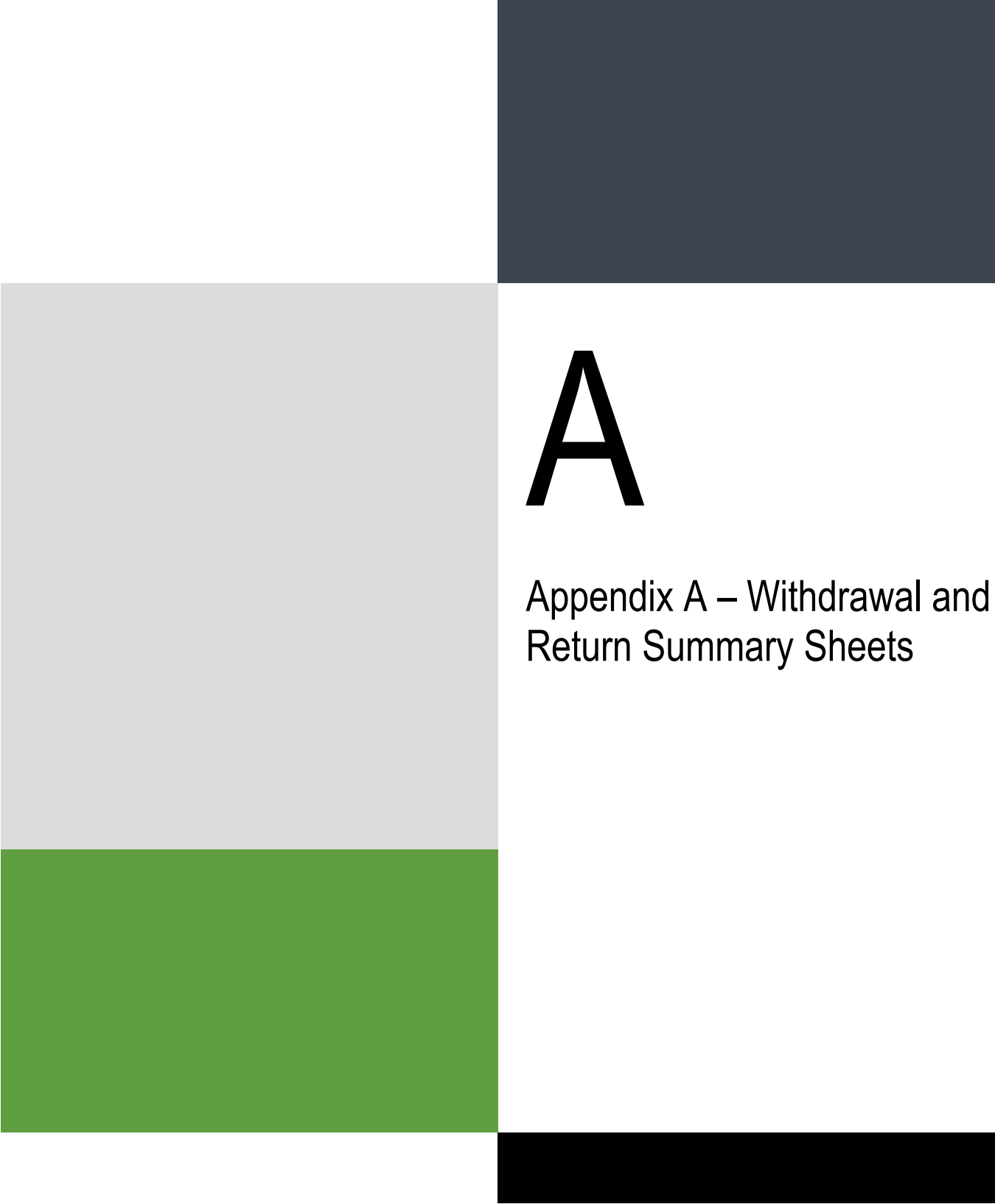
Table 6-1 Catawba-Wateree Basin Net Water Withdrawals Probabilistic Forecast, Base Year to 2075

Percentile	Base Year	2025	2035	2045	2055	2065	2075
25 th	194	175	201	230	253	272	287
50 th	194	200	230	262	298	330	354
75 th	194	226	260	298	350	396	432

7 Insights and Forecast Application

The following bullets summarize the data presented in the preceding sections and provide some concluding thoughts:

- Basin boundary expansion to include the Below Wateree watershed and changes in long-term technological needs for Duke Energy has significant impacts on the deterministic net water withdrawal projections. The expanded boundary added several large industrial users and also increased the A&I within the Basin, while the projected net water withdrawal needs for TEP are nearly 65 mgd less than the previous forecasts.
- The underlying data used in any forecast, and illustrated by fluctuations in historical Basin net water withdrawals, has a range of potential values which results in uncertainty in the estimation of future water withdrawals and returns. The use of probabilistic methods allows for the recognition of this uncertainty while providing an estimate of likely demand.
- While long-range planning is typically based on the 50th percentile forecast, the probabilistic forecast range is extremely valuable in informing the IWRP decision process planning. The forecast results will be leveraged for several efforts within the IWRP, including scenario analysis and development, updating the system-wide water supply model(s), and water quality evaluation.

The page features a large, stylized letter 'A' in the background. The left vertical stroke of the 'A' is composed of two stacked rectangles: a light gray one on top and a green one on the bottom. The right vertical stroke is a solid dark blue rectangle. The horizontal crossbar of the 'A' is a solid black rectangle.

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Appendix A – Withdrawal and Return Summary Sheets

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METHOD 1: IWRP PROJECTIONS ANALYSIS (AGR)																
				Forecasted Flow (mgd) (Based on 2020 Data)						Forecasted Flow (mgd) (Based on Base Year)						Entity--Facility
ID No.	Type	Category	Sub-basin	2025	2035	2045	2055	2065	2075	2025BY	2035BY	2045BY	2055BY	2065BY	2075BY	
SRB-1	R	IND	Below Wateree	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.12	0.12	Unimin Corp--HIGHWAY 1 PLANT
SRB-10	R	IND	Below Wateree	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	US Air Force--Shaw Air Force Base
SRB-2	R	IND	Below Wateree	34.73	36.50	38.37	40.33	42.40	44.56	33.22	35.00	36.86	38.83	40.89	43.06	International Paper Company--Eastover Mill
SRB-4	R	IND	Below Wateree	0.11	0.11	0.11	0.11	0.11	0.11	0.17	0.17	0.17	0.17	0.17	0.17	SC Department Corrections--Corrections Wateree River
SRB-5	R	IND	Below Wateree	0.51	0.51	0.51	0.51	0.51	0.51	0.05	0.05	0.05	0.05	0.05	0.05	Kennecott Ridgway Mining Company--Mining Facility
SRB-6	R	PW/WU	Below Wateree	2.80	3.50	3.68	3.87	4.07	4.27	2.39	3.09	3.27	3.46	3.66	3.87	Camden--City of Camden WWTF
SRB-7	R	PW/WU	Below Wateree	6.94	7.08	7.22	7.37	7.52	7.67	6.66	6.80	6.94	7.09	7.24	7.39	Palmetto Utilities--Spears Creek WWTF
SRB-8	R	PW/WU	Below Wateree	0.96	0.98	1.00	1.02	1.04	1.06	0.69	0.71	0.73	0.75	0.77	0.79	Kershaw County--Lugoff WWTF
SRB-3	R	TEP	Below Wateree	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	SCE&G--Dominion Energy Wateree Station
SWB-3	W	A/I	Below Wateree	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	Columbia Country Club--Golf Course Irrigation
SWB-6	W	A/I	Below Wateree	0.24	0.24	0.25	0.25	0.25	0.25	0.14	0.14	0.15	0.15	0.15	0.15	Lost Lake Waterworks, LLC--Golf Course Irrigation
SWB-5	W	A/I (CL)	Below Wateree	1.08	1.37	1.71	1.71	1.71	1.71	0.84	1.12	1.47	1.47	1.47	1.47	Basin Agricultural/Irrigation Demand--(Below Wateree)
SWB-9	W	A/I-F	Below Wateree	0.00	0.00	0.00	-0.23	-0.23	-0.23	0.00	0.00	0.00	-0.23	-0.23	-0.23	New Golf Course(s)--New Golf Course(s) (Below Wateree)
SWB-1	W	IND	Below Wateree	0.86	0.91	0.95	1.00	1.05	1.11	1.13	1.17	1.22	1.27	1.32	1.37	Unimin Corp--HIGHWAY 1 PLANT
SWB-2	W	IND	Below Wateree	2.19	2.36	2.54	2.74	2.95	3.18	1.94	2.11	2.30	2.49	2.71	2.94	Invista Sarl--Chemical Plant
SWB-4	W	IND	Below Wateree	30.67	32.24	33.89	35.62	37.44	39.35	30.16	31.73	33.37	35.11	36.93	38.84	International Paper Company--Eastover Mill
SWB-7	W	TEP	Below Wateree	6.49	6.49	6.49	6.49	6.49	6.49	10.77	10.77	10.77	10.77	10.77	10.77	SCE&G--Dominion Energy Wateree Station
SWB-8	W	TEP-F	Below Wateree	--	--	--	--	--	--	--	--	--	--	--	--	Duke Energy Corporation--Future - New (Below Wateree)
SRC-1	R	PW/WU	Cedar Creek Reservoir	0.49	0.53	0.57	0.62	0.67	0.73	0.47	0.51	0.56	0.60	0.65	0.71	Chester Sewer District--Rocky Creek WWTP
SRC-2	R	PW/WU	Cedar Creek Reservoir	0.27	0.27	0.27	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.26	0.26	Great Falls--Great Falls WWTP
SWC-1	W	A/I (CL)	Cedar Creek Reservoir	0.10	0.11	0.13	0.13	0.13	0.13	0.11	0.12	0.14	0.14	0.14	0.14	Basin Agricultural/irrigation Demand--(Cedar Creek Reservoir)
SWC-2	W	A/I (LS)	Cedar Creek Reservoir	0.03	0.04	0.07	0.09	0.11	0.14	0.02	0.04	0.06	0.08	0.10	0.13	Basin Residential Lakeside--(Cedar Creek Reservoir)
SRF-1	R	IND	Fishing Creek Reservoir	30.54	31.52	32.52	33.56	34.63	35.74	25.10	26.07	27.08	28.12	29.19	30.30	New-Indy Catwaba (Formerly Resolute Forest Product; Bowater, Inc.)--Pulp and Paper Mill
SRF-3	R	IND	Fishing Creek Reservoir	4.36	4.47	4.59	4.70	4.82	4.94	3.14	3.25	3.37	3.48	3.60	3.72	Nation Ford Chemical--Manufacturing Plant
NRF-1	R	PW/WU	Fishing Creek Reservoir	4.80	5.57	6.48	7.53	8.75	10.17	3.59	4.37	5.27	6.32	7.54	8.96	Charlotte Water--Franklin and Vest WTP
NRF-2	R	PW/WU	Fishing Creek Reservoir	11.71	14.41	18.18	21.41	24.24	27.45	9.21	11.92	15.69	18.92	21.75	24.96	Charlotte Water--Irwin Creek WWTP
NRF-3	R	PW/WU	Fishing Creek Reservoir	15.60	20.60	25.30	30.33	35.22	40.10	11.72	16.72	21.42	26.45	31.34	36.22	Charlotte Water--Sugar Creek WWTP
NRF-4	R	PW/WU	Fishing Creek Reservoir	49.18	57.64	65.91	73.17	80.82	88.40	45.85	54.31	62.59	69.84	77.50	85.07	Charlotte Water--McAlpine Creek WWTP
NRF-5	R	PW/WU	Fishing Creek Reservoir	5.95	7.26	8.85	10.79	13.15	16.03	4.11	5.41	7.00	8.94	11.30	14.18	Union County Public Works Department--Twelve Mile Creek WWTP
SRF-11	R	PW/WU	Fishing Creek Reservoir	1.12	1.37	1.68	2.05	2.51	3.07	1.16	1.41	1.72	2.09	2.55	3.11	Union County/Lancaster County--Catawba River Plant
SRF-5	R	PW/WU	Fishing Creek Reservoir	1.57	1.85	2.17	2.56	3.01	3.54	1.21	1.49	1.81	2.20	2.65	3.18	Fort Mill--Fort Mill WWTP
SRF-6	R	PW/WU	Fishing Creek Reservoir	3.29	4.05	4.97	6.10	7.49	9.20	2.72	3.47	4.40	5.53	6.92	8.63	Lancaster--Lancaster WWTP
SRF-7	R	PW/WU	Fishing Creek Reservoir	2.34	3.46	5.12	6.29	7.73	9.49	1.29	2.41	4.07	5.24	6.68	8.44	Lancaster County --Indianland WWTP
SRF-8	R	PW/WU	Fishing Creek Reservoir	13.66	16.07	18.28	20.80	23.67	26.93	11.25	13.66	15.87	18.39	21.26	24.52	Rock Hill--Manchester Creek WWTP
NRF-6	R	PW/WU (D)	Fishing Creek Reservoir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Carolina Water Service, Inc.--Forest Ridge WWTP
SRF-10	R	PW/WU (D)	Fishing Creek Reservoir	0.03	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.05	0.05	Foxwood Sewer District--Foxwood Sewer District
SRF-9	R	PW/WU (D)	Fishing Creek Reservoir	0.26	0.28	0.31	0.33	0.36	0.39	0.25	0.28	0.30	0.33	0.36	0.39	Carolina Water Service, Inc.--Lamplighter Village Sewer District
NWF-10	W	A/I	Fishing Creek Reservoir	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	TPC at Pipe Glen--Golf Course Irrigation
NWF-3	W	A/I	Fishing Creek Reservoir	0.33	0.33	0.33	0.33	0.33	0.33	0.29	0.29	0.29	0.29	0.29	0.29	Carmel Country Club--Golf Course Irrigation
NWF-5	W	A/I	Fishing Creek Reservoir	0.09	0.09	0.09	0.09	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.07	Firethorne Country Club--Golf Course Irrigation
SWY-8	W	A/I	Fishing Creek Reservoir	1.96	1.96	1.96	1.96	1.96	1.96	1.93	1.93	1.93	1.93	1.93	1.93	Waterford Golf Club--Golf Course Irrigation
SWF-8	W	A/I (CL)	Fishing Creek Reservoir	1.16	1.34	1.56	1.56	1.56	1.56	1.06	1.24	1.46	1.46	1.46	1.46	Basin Agricultural/irrigation Demand--(Fishing Creek Reservoir)
SWF-10	W	A/I (LS)	Fishing Creek Reservoir	0.29	0.58	0.87	0.87	0.87	0.87	0.20	0.48	0.78	0.78	0.78	0.78	Basin Residential Lakeside--(Fishing Creek Reservoir)
SWF-11	W	A/I-F	Fishing Creek Reservoir	0.00	0.00	0.00	0.00	0.00	-0.46	0.00	0.00	0.00	0.00	0.00	-0.46	New Golf Course(s)--New Golf Course(s) (Fishing Creek Reservoir)
SWF-2	W	IND	Fishing Creek Reservoir	21.74	21.74	21.74	21.74	21.74	21.74	27.79	27.79	27.79	27.79	27.79	27.79	New-Indy Catwaba (Formerly Resolute Forest Product; Bowater, Inc.)--Pulp and Paper Mill
SWF-4	W	IND	Fishing Creek Reservoir	4.28	4.28	4.28	4.28	4.28	4.28	3.11	3.11	3.11	3.11	3.11	3.11	Nation Ford Chemical--Manufacturing Plant
SWF-5	W	PW/WU	Fishing Creek Reservoir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Rock Hill--Catawba River Plant (Emergency/Backup)
SWF-6	W	PW/WU	Fishing Creek Reservoir	23.90	29.23	35.75	43.72	53.47	65.40	20.83	26.16	32.68	40.65	50.40	62.33	Union County/Lancaster County--Catawba River Plant
SWF-7	W	PW/WU	Fishing Creek Reservoir	5.78	7.05	8.59	10.47	12.77	15.56	6.02	7.28	8.83	10.71	13.00	15.80	Chester Metro--Chester WTP
SWF-9	W	TEP-F	Fishing Creek Reservoir	--	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	Duke Energy Corporation--Future - New (Fishing Creek Reservoir)
SRG-1	R	PW/WU	Great Falls Reservoir	0.30	0.32	0.35	0.38	0.41	0.44	0.21	0.24	0.26	0.29	0.32	0.35	Chester Sewer District--Lando Manetta WWTP
SRG-2	R	PW/WU	Great Falls Reservoir	0.97	1.14	1.34	1.57	1.85	2.18	0.89	1.06	1.26	1.50	1.77	2.10	York--Fishing Creek WWTP
SWG-1	W	A/I (CL)	Great Falls Reservoir	0.12	0.14	0.16	0.16	0.16	0.16	0.13	0.15	0.17	0.17	0.17	0.17	Basin Agricultural/irrigation Demand--(Great Falls Reservoir)
SWG-2	W	A/I (LS)	Great Falls Reservoir	0.02	0.03	0.05	0.07	0.09	0.09	0.01	0.03	0.05	0.07	0.09	0.09	Basin Residential Lakeside--(Great Falls Reservoir)

METHOD 1: IWRP PROJECTIONS ANALYSIS (AGR)																
				Forecasted Flow (mgd) (Based on 2020 Data)						Forecasted Flow (mgd) (Based on Base Year)						Entity--Facility
ID No.	Type	Category	Sub-basin	2025	2035	2045	2055	2065	2075	2025BY	2035BY	2045BY	2055BY	2065BY	2075BY	
<u>NRH-1</u>	R	IND	Lake Hickory	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	Huffman Finishing, Inc.--Huffman Finishing
<u>NRH-3</u>	R	PW/WU	Lake Hickory	3.87	4.96	5.31	5.69	6.10	6.54	3.60	4.68	5.04	5.42	5.83	6.27	City of Hickory--Northeast WWTP
<u>NRH-4</u>	R	PW/WU	Lake Hickory	1.54	1.64	1.74	1.84	1.96	2.07	1.19	1.29	1.39	1.49	1.60	1.72	City of Lenoir--Gunpowder Creek WWTP
<u>NRH-5</u>	R	PW/WU	Lake Hickory	0.47	0.49	0.52	0.56	0.59	0.63	0.37	0.39	0.42	0.46	0.49	0.53	Town of Granite Falls--Granite Falls WWTP
<u>NWH-5</u>	W	A/I	Lake Hickory	0.16	0.16	0.16	0.16	0.16	0.16	0.13	0.13	0.13	0.13	0.13	0.13	Lake Hickory Country Club--Golf Course Irrigation
<u>NWH-3</u>	W	A/I (CL)	Lake Hickory	2.63	2.84	3.08	3.08	3.08	3.08	2.54	2.74	2.99	2.99	2.99	2.99	Basin Agricultural/Irrigation Demand--(Lake Hickory)
<u>NWH-8</u>	W	A/I (LS)	Lake Hickory	0.20	0.38	0.52	0.68	0.84	1.01	0.14	0.32	0.46	0.61	0.77	0.95	Basin Residential Lakeside--(Lake Hickory)
<u>NWH-7</u>	W	A/I-F	Lake Hickory	0.00	0.00	-0.23	-0.23	-0.23	-0.23	0.00	0.00	-0.23	-0.23	-0.23	-0.23	New Golf Course(s)--New Golf Course(s) (Lake Hickory)
<u>NWH-1</u>	W	PW/WU	Lake Hickory	14.66	18.76	20.11	21.55	23.10	24.76	14.39	18.50	19.85	21.29	22.84	24.50	City of Hickory--Hickory WTP
<u>NWH-2</u>	W	PW/WU	Lake Hickory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Town of Long View--Long View WTP
<u>NWH-6</u>	W	TEP-F	Lake Hickory	--	--	--	--	--	--	--	--	--	--	--	--	Duke Energy Corporation--Future - New (Lake Hickory)
<u>NRJ-11</u>	R	A/I	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NC Wildlife Resources Commission --Armstrong State Fish Hatchery - Upper
<u>NRJ-12</u>	R	A/I	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NC Wildlife Resources Commission --Armstrong State Fish Hatchery - Lower
<u>NRJ-13</u>	R	A/I	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NC Wildlife Resources Commission --Armstrong State Fish Hatchery
<u>NRJ-14</u>	R	A/I	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NC Wildlife Resources Commission --Marion State Fish Hatchery
<u>NRJ-9</u>	R	A/I	Lake James	0.32	0.32	0.32	0.32	0.32	0.32	0.33	0.33	0.33	0.33	0.33	0.33	Buck Creek Trout Farm --Buck Creek Trout Farm
<u>NRJ-1</u>	R	IND	Lake James	0.95	1.00	1.05	1.11	1.16	1.22	0.82	0.87	0.93	0.98	1.04	1.10	Baxter Healthcare Corporation--Baxter Healthcare Corporation
<u>NRJ-2</u>	R	IND	Lake James	0.58	0.58	0.58	0.58	0.58	0.58	0.55	0.55	0.55	0.55	0.55	0.55	Coats American --Sevier Finishing Plant
<u>NRJ-3</u>	R	PW/WU	Lake James	0.03	0.03	0.04	0.04	0.04	0.04	0.07	0.08	0.08	0.08	0.08	0.08	City of Marion--Marion WTP
<u>NRJ-5</u>	R	PW/WU	Lake James	0.23	0.24	0.25	0.26	0.27	0.29	0.21	0.22	0.23	0.24	0.25	0.27	Town of Old Fort--Old Fort WWTP
<u>NRJ-7</u>	R	PW/WU (D)	Lake James	0.19	0.19	0.20	0.21	0.22	0.23	0.14	0.15	0.16	0.17	0.18	0.18	Linville Harbor Pr. Owners Assoc.--Linville Harbor Pr. Owners Assoc.
<u>NRJ-8</u>	R	PW/WU (D)	Lake James	0.11	0.11	0.12	0.12	0.13	0.13	0.06	0.07	0.07	0.08	0.08	0.09	Linville Resorts, Inc--Linville Resorts Incorporated
<u>NWJ-13</u>	W	A/I	Lake James	0.02	0.02	0.02	0.02	0.02	0.02	0.08	0.08	0.08	0.08	0.08	0.08	Marion Lake Club--Golf Course Irrigation
<u>NWJ-17</u>	W	A/I	Lake James	0.52	0.52	0.52	0.52	0.52	0.52	0.32	0.32	0.32	0.32	0.32	0.32	Grandfather Golf and Country Club--Golf Course Irrigation
<u>NWJ-6</u>	W	A/I	Lake James	0.32	0.32	0.32	0.00	0.00	0.00	0.33	0.33	0.33	0.00	0.00	0.00	Buck Creek Trout Farm --Buck Creek Trout Farm
<u>NWJ-12</u>	W	A/I (CL)	Lake James	5.58	6.18	6.91	6.91	6.91	6.91	4.72	5.32	6.05	6.05	6.05	6.05	Basin Agricultural/Irrigation Demand--(Lake James)
<u>NWJ-16</u>	W	A/I (LS)	Lake James	0.08	0.14	0.21	0.29	0.36	0.45	0.05	0.12	0.19	0.26	0.34	0.42	Basin Residential Lakeside--(Lake James)
<u>NWJ-15</u>	W	A/I-F	Lake James	0.00	0.00	0.00	0.00	0.23	0.23	0.00	0.00	0.00	0.00	0.23	0.23	New Golf Course(s)--New Golf Course(s) (Lake James)
<u>NWJ-1</u>	W	IND	Lake James	0.50	0.50	0.50	0.50	0.50	0.50	0.60	0.60	0.60	0.60	0.60	0.60	Coats American --Sevier Finishing Plant
<u>NWJ-2</u>	W	PW/WU	Lake James	1.72	1.79	1.87	1.95	2.03	2.12	1.57	1.64	1.72	1.80	1.88	1.96	City of Marion--Marion WTP
<u>NWJ-3</u>	W	PW/WU	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Marion--Marion WTP (see NWJ-2 for proj.)
<u>NWJ-4</u>	W	PW/WU	Lake James	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Marion--Marion WTP (see NWJ-2 for proj.)
<u>NWJ-5</u>	W	TEP-F	Lake James	--	--	--	--	--	--	--	--	--	--	--	--	Duke Energy Corporation--Future - New (Lake James)
<u>NRN-1</u>	R	PW/WU	Lake Norman	0.15	0.14	0.10	0.06	0.00	0.00	0.10	0.09	0.05	0.00	0.00	0.00	City of Claremont--McLin Creek WWTP
<u>NRN-2</u>	R	PW/WU	Lake Norman	0.05	0.05	0.02	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	City of Claremont--North WWTP
<u>NRN-4</u>	R	PW/WU	Lake Norman	0.08	0.09	0.10	0.10	0.11	0.12	0.29	0.29	0.30	0.31	0.32	0.32	City of Conover--Northeast WWTP
<u>NRN-5</u>	R	PW/WU	Lake Norman	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Conover--Southeast WWTP
<u>NRN-6</u>	R	PW/WU	Lake Norman	0.13	0.16	0.17	0.19	0.20	0.21	0.08	0.12	0.13	0.14	0.15	0.17	City of Hickory--Hickory-Catawba WWTP (Town of Catawba)
<u>NRN-7</u>	R	PW/WU	Lake Norman	0.19	0.26	0.34	0.44	0.56	0.69	0.11	0.18	0.26	0.36	0.48	0.61	Lincoln County--Lincoln County WTP
<u>NWN-10</u>	W	A/I	Lake Norman	0.26	0.26	0.26	0.26	0.26	0.26	0.15	0.15	0.15	0.15	0.15	0.15	The Peninsula Club--Golf Course Irrigation
<u>NWN-11</u>	W	A/I	Lake Norman	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	Cowans Ford Country Club--Golf Course Irrigation
<u>NWN-12</u>	W	A/I	Lake Norman	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.06	0.06	0.06	0.06	0.06	Mallard Head Country Club--Golf Course Irrigation
<u>NWN-9</u>	W	A/I	Lake Norman	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16	Trump National Golf Club (Formerly: The Point Lake & Golf Club)--Golf Course Irrigation
<u>NWN-8</u>	W	A/I (CL)	Lake Norman	1.95	2.05	2.16	2.16	2.16	2.16	1.82	1.91	2.03	2.03	2.03	2.03	Basin Agricultural/Irrigation Demand--(Lake Norman)
<u>NWN-13</u>	W	A/I (LS)	Lake Norman	1.10	2.06	2.73	3.45	4.22	5.06	0.74	1.70	2.37	3.09	3.86	4.70	Basin Residential Lakeside--(Lake Norman)
<u>NWN-14</u>	W	A/I-F	Lake Norman	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	-0.46	New Golf Course(s)--New Golf Course(s) (Lake Norman)
<u>NWN-1</u>	W	PW/WU	Lake Norman	19.27	22.39	26.02	30.24	35.14	40.84	18.43	21.55	25.18	29.40	34.30	40.00	Charlotte Water--Lee S Dukes WTP
<u>NWN-2</u>	W	PW/WU	Lake Norman	3.47	3.93	4.46	5.06	5.74	6.51	3.08	3.55	4.08	4.68	5.36	6.13	Lincoln County--Lincoln County WTP
<u>NWN-3</u>	W	PW/WU	Lake Norman	8.27	9.88	11.15	12.77	14.91	15.14	6.51	8.12	9.39	11.02	13.16	13.39	Town of Mooresville--Mooresville WTP
<u>NWN-4</u>	W	PW/WU	Lake Norman	1.00	3.00	3.00	6.00	6.00	6.00	1.00	3.00	3.00	6.00	6.00	6.00	Concord/Kannapolis/Cabarrus Co.--Future - New-IBT
<u>NWN-5</u>	W	TEP	Lake Norman	9.00	9.00	0.00	0.00	0.00	0.00	9.00	9.00	0.00	0.00	0.00	0.00	Duke Energy Corporation--Marshall Steam Station
<u>NWN-15</u>	W	TEP-F	Lake Norman	--	6.50	19.50	26.00	26.00	26.00	--	6.50	19.50	26.00	26.00	26.00	Duke Energy Corporation--Future - New (Lake Norman)
<u>NWN-6</u>	W	TEP-F	Lake Norman	21.00	21.00	21.00	21.00	0.00	0.00	21.00	21.00	21.00	21.00	0.00	0.00	Duke Energy Corporation--McGuire Nuclear Station
<u>NWN-7</u>	W	TEP-F	Lake Norman	0.00	0.00	0.00	0.00	26.00	26.00	0.00	0.00	0.00	0.00	26.00	26.00	Duke Energy Corporation--Future - New (MNS Site) (Lake Norman)

METHOD 1: IWRP PROJECTIONS ANALYSIS (AGR)																
				Forecasted Flow (mgd) (Based on 2020 Data)						Forecasted Flow (mgd) (Based on Base Year)						Entity--Facility
ID No.	Type	Category	Sub-basin	2025	2035	2045	2055	2065	2075	2025BY	2035BY	2045BY	2055BY	2065BY	2075BY	
<u>NRR-8</u>	R	A/I	Lake Rhodhiss	1.81	1.81	1.81	1.81	1.81	1.81	1.26	1.26	1.26	1.26	1.26	1.26	NC Wildlife Resources Commission --Table Rock State Fish Hatchery
<u>NRR-1</u>	R	IND	Lake Rhodhiss	1.25	1.36	1.48	1.61	1.76	1.91	1.16	1.27	1.39	1.52	1.66	1.81	SGL Carbon Corporation--SGL Carbon Corporation
<u>NRR-2</u>	R	PW/WU	Lake Rhodhiss	0.22	0.24	0.25	0.27	0.28	0.30	0.10	0.11	0.12	0.14	0.16	0.17	City of Lenoir--Lenoir WTP (Lake Rhodhiss WTP)
<u>NRR-3</u>	R	PW/WU	Lake Rhodhiss	3.03	3.22	3.41	3.62	3.84	4.07	3.07	3.25	3.45	3.65	3.87	4.11	City of Lenoir--Lower Creek WWTP
<u>NRR-4</u>	R	PW/WU	Lake Rhodhiss	1.11	1.15	1.20	1.25	1.31	1.36	0.92	0.96	1.01	1.06	1.12	1.17	City of Marion--Corpening Creek WWTP
<u>NRR-5</u>	R	PW/WU	Lake Rhodhiss	4.23	4.58	4.96	5.38	5.83	6.33	3.54	3.89	4.27	4.69	5.14	5.64	City of Morganton--Catawba River Pollution Control Facility
<u>NRR-7</u>	R	PW/WU	Lake Rhodhiss	2.30	2.40	2.50	2.60	2.71	2.83	2.20	2.29	2.39	2.50	2.61	2.72	Town of Valdese--Lake Rhodiss WWTP
<u>NWR-5</u>	W	A/I	Lake Rhodhiss	1.81	1.81	1.81	1.81	1.81	1.81	1.27	1.27	1.27	1.27	1.27	1.27	NC Wildlife Resources Commission --Table Rock State Fish Hatchery
<u>NWR-6</u>	W	A/I (CL)	Lake Rhodhiss	11.30	12.23	13.36	13.36	13.36	13.36	10.47	11.40	12.53	12.53	12.53	12.53	Basin Agricultural/Irrigation Demand--(Lake Rhodhiss)
<u>NWR-7</u>	W	A/I (LS)	Lake Rhodhiss	0.04	0.08	0.11	0.15	0.19	0.23	0.03	0.06	0.10	0.13	0.17	0.22	Basin Residential Lakeside--(Lake Rhodhiss)
<u>NWR-1</u>	W	PW/WU	Lake Rhodhiss	1.35	1.43	1.52	1.61	1.71	1.81	1.23	1.31	1.40	1.49	1.58	1.69	Town of Granite Falls--Granite Falls WTP
<u>NWR-2</u>	W	PW/WU	Lake Rhodhiss	7.63	8.09	8.58	9.10	9.66	10.24	6.48	6.94	7.43	7.95	8.51	9.09	City of Lenoir--Lenoir WTP (Lake Rhodhiss WTP)
<u>NWR-3</u>	W	PW/WU	Lake Rhodhiss	8.13	8.80	9.53	10.33	11.21	12.17	9.23	9.90	10.63	11.43	12.31	13.26	City of Morganton--Catawba River WTP
<u>NWR-4</u>	W	PW/WU	Lake Rhodhiss	2.72	2.80	2.89	2.98	3.08	3.18	3.28	3.37	3.46	3.55	3.64	3.74	Town of Valdese--Valdese WTP
<u>SWW-4</u>	W	A/I (CL)	Lake Wateree	0.12	0.13	0.14	0.14	0.14	0.14	0.12	0.12	0.13	0.13	0.13	0.13	Basin Agricultural/Irrigation Demand--(Lake Wateree)
<u>SWW-5</u>	W	A/I (LS)	Lake Wateree	0.18	0.33	0.48	0.65	0.82	1.02	0.12	0.27	0.42	0.59	0.76	0.96	Basin Residential Lakeside--(Lake Wateree)
<u>SWW-1</u>	W	PW/WU	Lake Wateree	3.17	3.96	4.17	4.38	4.61	4.85	2.43	3.22	3.43	3.64	3.87	4.11	Camden--City of Camden WTP
<u>SWW-2</u>	W	PW/WU	Lake Wateree	5.11	6.29	7.47	8.65	9.83	12.00	4.81	5.99	7.17	8.35	9.53	11.70	Lugoff Elgin Water Authority--Lugoff-Elgin WTP
<u>SWW-3</u>	W	TEP-F	Lake Wateree	--	6.50	19.50	26.00	26.00	26.00	--	6.50	19.50	26.00	26.00	26.00	Duke Energy Corporation--Future - New (Lake Wateree)
<u>NRY-1</u>	R	IND	Lake Wylie	0.37	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	Clariant Corporation --Mount Holly East (MHE) Facility
<u>NRY-11</u>	R	IND	Lake Wylie	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	General Electric Company-Hickory--General Electric Company-Hickory
<u>NRY-2</u>	R	IND	Lake Wylie	0.39	0.39	0.39	0.39	0.39	0.39	0.72	0.72	0.72	0.72	0.72	0.72	Delta Apparel, Inc--Delta Apparel Incorporated
<u>NRY-3</u>	R	IND	Lake Wylie	0.37	0.40	0.45	0.49	0.54	0.60	0.63	0.67	0.71	0.76	0.81	0.86	FMC Corporation--Lithium Division Plant
<u>NRY-6</u>	R	IND	Lake Wylie	0.14	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	Pharr Yarns, Inc--Pharr Yarns Industrial WWTP
<u>NRY-14</u>	R	PW/WU	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Belmont--Belmont WWTP
<u>NRY-15</u>	R	PW/WU	Lake Wylie	0.59	0.63	0.67	0.72	0.76	0.81	0.51	0.55	0.59	0.63	0.68	0.73	City of Cherryville--Cherryville WWTP
<u>NRY-17</u>	R	PW/WU	Lake Wylie	3.36	3.57	3.80	4.05	4.31	4.58	2.47	2.69	2.92	3.16	3.42	3.70	Two River Utilities/Gastonia--Crowders Creek WWTP (formerly City of Gastonia)
<u>NRY-18</u>	R	PW/WU	Lake Wylie	8.13	8.65	9.21	9.80	10.44	11.11	6.89	7.41	7.97	8.56	9.19	9.86	Two River Utilities/Gastonia--Long Creek WWTP (formerly City of Gastonia)
<u>NRY-19</u>	R	PW/WU	Lake Wylie	2.66	2.86	3.06	3.28	3.52	3.77	2.48	2.67	2.88	3.10	3.33	3.59	City of Hickory--Henry Fork WWTP
<u>NRY-20</u>	R	PW/WU	Lake Wylie	0.48	0.55	0.62	0.70	0.80	0.90	0.48	0.55	0.62	0.70	0.80	0.90	City of Lincolnton --Lincolnton WTP
<u>NRY-21</u>	R	PW/WU	Lake Wylie	2.71	3.08	3.49	3.96	4.49	5.10	2.50	2.86	3.28	3.75	4.28	4.88	City of Lincolnton --Lincolnton WWTP
<u>NRY-22</u>	R	PW/WU	Lake Wylie	0.30	0.32	0.34	0.36	0.38	0.41	0.25	0.27	0.29	0.31	0.33	0.36	City of Lowell--Lowell WWTP
<u>NRY-23</u>	R	PW/WU	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Mount Holly--Mount Holly WTP
<u>NRY-24</u>	R	PW/WU	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	City of Mount Holly--Mount Holly WWTP
<u>NRY-25</u>	R	PW/WU	Lake Wylie	3.69	3.96	4.24	4.55	4.87	5.22	2.24	2.51	2.79	3.10	3.42	3.77	City of Newton--Clark Creek WWTP
<u>NRY-27</u>	R	PW/WU	Lake Wylie	0.91	0.97	1.04	1.10	1.17	1.25	0.68	0.74	0.80	0.87	0.94	1.01	Two River Utilities/Gastonia--Eagle Road WWTP (formerly Town of Cramerton)
<u>NRY-28</u>	R	PW/WU	Lake Wylie	0.40	0.42	0.45	0.48	0.51	0.54	0.37	0.39	0.42	0.45	0.48	0.51	Town of Dallas--Dallas WWTP
<u>NRY-29</u>	R	PW/WU	Lake Wylie	0.66	0.71	0.76	0.82	0.87	0.94	0.41	0.46	0.51	0.56	0.62	0.68	Town of Maiden--Maiden WWTP
<u>NRY-37</u>	R	PW/WU	Lake Wylie	7.80	9.40	11.70	13.71	15.74	17.76	7.80	9.40	11.70	13.71	15.74	17.76	Charlotte Water--Stowe Regional WRRF (Future)
<u>NRY-38</u>	R	PW/WU	Lake Wylie	1.32	1.50	1.70	1.93	2.19	2.48	0.92	1.09	1.30	1.52	1.78	2.08	Lincoln County--Killian Creek WWTP
<u>NRY-32</u>	R	PW/WU (D)	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Carolina Water Service, Inc.--Queens Harbor WWTP
<u>NRY-33</u>	R	PW/WU (D)	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Carolina Water Service, Inc.--Riverpointe WWTP
<u>NRY-34</u>	R	PW/WU (D)	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Hideways WWTP--Hideways WWTP
<u>SRY-1</u>	R	PW/WU (D)	Lake Wylie	0.22	0.26	0.30	0.35	0.42	0.49	0.20	0.24	0.28	0.34	0.40	0.47	Carolina Water Service, Inc.--Tega Cay 2
<u>SRY-2</u>	R	PW/WU (D)	Lake Wylie	0.16	0.19	0.22	0.26	0.30	0.36	0.15	0.18	0.21	0.25	0.30	0.35	Carolina Water Service, Inc.--Tega Cay 3
<u>NWY-18</u>	W	A/I	Lake Wylie	0.06	0.06	0.06	0.06	0.06	0.06	0.11	0.11	0.11	0.11	0.11	0.11	Gaston Country Club--Golf Course Irrigation
<u>NWY-21</u>	W	A/I	Lake Wylie	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.11	0.11	0.11	0.11	0.11	The Palisades Country Club--Golf Course Irrigation
<u>NWY-23</u>	W	A/I	Lake Wylie	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	Cramer Mountain Country Club--Golf Course Irrigation
<u>SWY-6</u>	W	A/I	Lake Wylie	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.08	0.08	0.08	0.08	0.08	River Hills Country Club--Golf Course Irrigation
<u>SWY-7</u>	W	A/I	Lake Wylie	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.14	0.14	0.14	Tega Cay Golf Club--Golf Course Irrigation
<u>SWY-5</u>	W	A/I (CL)	Lake Wylie	4.86	5.24	5.71	5.71	5.71	5.71	4.50	4.88	5.35	5.35	5.35	5.35	Basin Agricultural/Irrigation Demand--(Lake Wylie)
<u>SWY-9</u>	W	A/I (LS)	Lake Wylie	0.50	0.94	1.32	1.75	2.21	2.72	0.34	0.78	1.16	1.58	2.05	2.56	Basin Residential Lakeside--(Lake Wylie)
<u>SWY-38</u>	W	A/I-F	Lake Wylie	0.00	-0.23	-0.46	-0.46	-0.46	-0.69	0.00	-0.23	-0.46	-0.46	-0.46	-0.69	New Golf Course(s)--New Golf Course(s) (Lake Wylie)
<u>NWY-1</u>	W	IND	Lake Wylie	0.53	0.53	0.53	0.53	0.53	0.53	0.74	0.74	0.74	0.74	0.74	0.74	Confidential Industry--Confidential Industry
<u>NWY-2</u>	W	IND	Lake Wylie	0.08	0.09	0.09	0.10	0.11	0.11	0.23	0.23	0.24	0.25	0.25	0.26	Clariant Corporation --Mt. Holly Plant
<u>NWY-4</u>	W	IND	Lake Wylie	1.46	1.77	2.15	2.61	3.16	3.83	1.26	1.57	1.95	2.40	2.95	3.62	Hedrick Industries --Lake Norman Quarry
<u>NWY-10</u>	W	PW/WU	Lake Wylie	0.59	0.63	0.67	0.71	0.76	0.81	0.62	0.66	0.70	0.74	0.79	0.84	Town of Dallas--Dallas WTP
<u>NWY-12</u>	W	PW/WU	Lake Wylie	2.85	3.23	3.67	4.16	4.72	5.36	3.25	3.63	4.07	4.56	5.12	5.76	City of Lincolnton --Lincolnton WTP
<u>NWY-13</u>	W	PW/WU	Lake Wylie	4.09	4.38	4.69	5.03	5.39	5.78	3.84	4.13	4.45	4.79	5.15	5.53	City of Newton--Newton WTP (Jacob's Fork)
<u>NWY-6</u>	W	PW/WU	Lake Wylie	2.22	2.47	2.74	3.06	3.41	3.81	2.09	2.33	2.61	2.92	3.28	3.68	City of Belmont--Belmont WTP
<u>NWY-7</u>	W	PW/WU	Lake Wylie	1.29	1.37	1.46	1.55	1.65	1.76	1.14	1.22	1.31	1.41	1.51	1.61	Bessemer City--J.V. Tarpley WTP
<u>NWY-8</u>	W	PW/WU	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Bessemer City--J.V. Tarpley WTP (see above for proj.)
<u>NWY-9</u>	W	PW/WU	Lake Wylie	0.78	0.84	0.91	0.98	1.06	1.15	0.72	0.79	0.85	0.93	1.01	1.10	City of Cherryville--Cherryville WTP
<u>SWY-1</u>	W	PW/WU	Lake Wylie	23.19	27.08	31.63	36.95	43.17	50.45	18.91	22.80	27.34	32.66	38.89	46.16	Rock Hill--City of Rock Hill WTP (Lake Wylie)

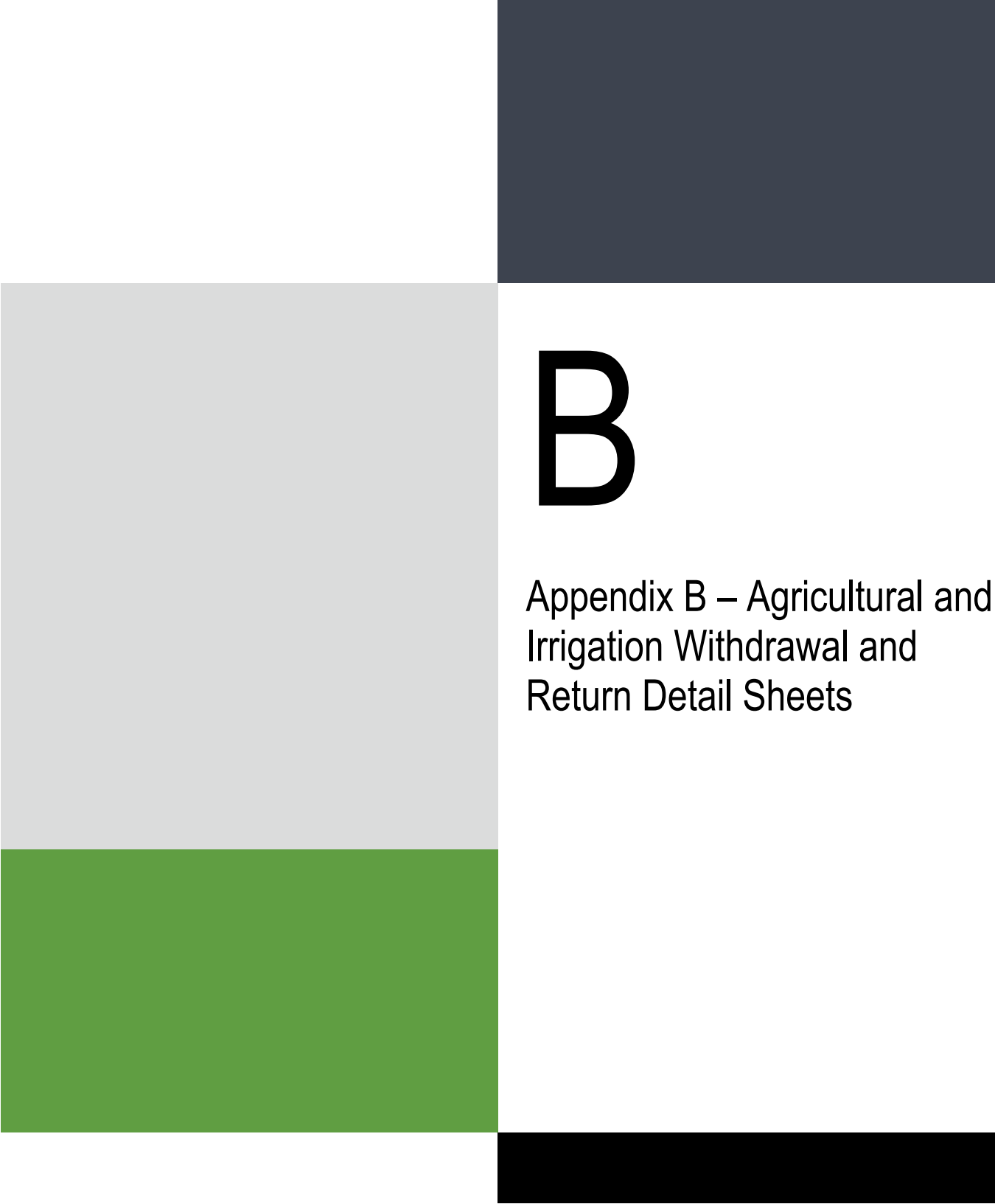
METHOD 1: IWRP PROJECTIONS ANALYSIS (AGR)

				Forecasted Flow (mgd) (Based on 2020 Data)						Forecasted Flow (mgd) (Based on Base Year)						Entity--Facility
ID No.	Type	Category	Sub-basin	2025	2035	2045	2055	2065	2075	2025BY	2035BY	2045BY	2055BY	2065BY	2075BY	
NWY-16	W	TEP	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Duke Energy Corporation--Allen Steam Plant
NWY-17	W	TEP	Lake Wylie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Duke Energy Corporation--Lincoln Combustion Turbine Facility
SWY-3	W	TEP	Lake Wylie	33.00	33.00	33.00	33.00	33.00	0.00	33.00	33.00	33.00	33.00	33.00	0.00	Duke Energy Corporation--Catatwba Nuclear Station
SWY-4	W	TEP-F	Lake Wylie	--	--	--	--	--	26.00	--	--	--	--	--	26.00	Duke Energy Corporation--Future - New (Lake Wylie)
NRL-1	R	IND	Lookout Shoals Lake	0.24	0.24	0.24	0.24	0.24	0.24	0.28	0.28	0.28	0.28	0.28	0.28	Schneider Mills, Inc.--Schneider Mills WWTP
NRL-2	R	PW/WU	Lookout Shoals Lake	0.43	0.46	0.49	0.52	0.55	0.59	0.43	0.46	0.49	0.52	0.56	0.59	Town of Taylorsville--Taylorsville WWTP
NWL-2	W	A/I (CL)	Lookout Shoals Lake	1.11	1.13	1.15	1.15	1.15	1.15	1.09	1.11	1.13	1.13	1.13	1.13	Basin Agricultural/Irrigation Demand--(Lookout Shoals Lake)
NWL-4	W	A/I (LS)	Lookout Shoals Lake	0.02	0.04	0.06	0.08	0.10	0.12	0.02	0.03	0.05	0.07	0.09	0.12	Basin Residential Lakeside--(Lookout Shoals Lake)
NWL-1	W	PW/WU	Lookout Shoals Lake	2.97	3.30	3.67	4.08	4.53	5.04	3.29	3.62	3.99	4.40	4.85	5.36	City of Statesville--Statesville WTP
NRM-1	R	PW/WU	Mountain Island Lake	0.39	0.50	0.63	0.78	0.97	1.18	0.38	0.49	0.62	0.77	0.95	1.17	Charlotte Water--Lee S Dukes WTP
NRM-2	R	PW/WU	Mountain Island Lake	5.72	6.13	6.78	7.26	7.79	8.31	5.26	5.67	6.31	6.80	7.33	7.85	Charlotte Water--McDowell Creek WWTP
NWM-8	W	A/I	Mountain Island Lake	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	Birkdale Golf Club--Golf Course Irrigation
NWM-5	W	A/I (CL)	Mountain Island Lake	0.15	0.16	0.18	0.18	0.18	0.18	0.12	0.13	0.15	0.15	0.15	0.15	Basin Agricultural/Irrigation Demand--(Mountain Island Lake)
NWM-6	W	A/I (LS)	Mountain Island Lake	0.07	0.13	0.19	0.27	0.36	0.46	0.05	0.10	0.17	0.25	0.34	0.44	Basin Residential Lakeside--(Mountain Island Lake)
NWM-7	W	A/I-F	Mountain Island Lake	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	New Golf Course(s)--New Golf Course(s) (Mountain Island Lake)
NWM-1	W	PW/WU	Mountain Island Lake	92.21	107.16	124.54	144.73	168.20	195.47	95.58	110.53	127.90	148.10	171.56	198.83	Charlotte Water--Franklin and Vest WTP
NWM-2	W	PW/WU	Mountain Island Lake	19.30	21.02	22.94	25.07	27.46	30.12	18.87	20.59	22.51	24.65	27.03	29.69	Two River Utilities/Gastonia--Gastonia WTP (Mt. Island Lake) (formerly City of Gastonia)
NWM-3	W	PW/WU	Mountain Island Lake	2.91	2.61	3.04	3.46	3.96	4.52	2.78	2.47	2.90	3.33	3.82	4.39	City of Mount Holly--Mount Holly WTP
NWM-4	W	TEP	Mountain Island Lake	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Duke Energy Corporation--Riverbend Steam Station

METHOD 2: LOCAL WATER SUPPLY PLAN

					Forecasted						
ID No.	Type	Category	Sub-basin	2020	2025	2035	2045	2055	2065	2075	Entity
SWF-5	W	PW/WU	Fishing Creek Reservoir	ND	-	-	-	-	-	-	Rock Hill
SWF-6	W	PW/WU	Fishing Creek Reservoir	21.61	-	-	-	-	-	-	Union County/Lancaster County
SWF-7	W	PW/WU	Fishing Creek Reservoir	2.63	-	-	-	-	-	-	Chester Metro
NWH-1	W	PW/WU	Lake Hickory	12.20	21.40	21.72	22.00	22.29	22.59	22.89	City of Hickory
NWH-2	W	PW/WU	Lake Hickory	ND	-	-	-	-	-	-	Town of Long View
NWJ-2	W	PW/WU	Lake James	1.68	1.72	1.50	1.51	1.52	1.53	1.55	City of Marion
NWJ-3	W	PW/WU	Lake James	ND	-	-	-	-	-	-	City of Marion
NWJ-4	W	PW/WU	Lake James	ND	-	-	-	-	-	-	City of Marion
NWN-1	W	PW/WU	Lake Norman	17.87	21.67	26.77	31.19	35.60	40.02	44.43	Charlotte Water
NWN-2	W	PW/WU	Lake Norman	3.25	4.33	5.23	6.18	7.20	8.26	9.33	Lincoln County
NWN-3	W	PW/WU	Lake Norman	6.92	8.29	9.87	11.08	12.11	13.47	14.82	Town of Mooresville
NWN-4	W	PW/WU	Lake Norman	ND	3.50	3.50	3.50	6.50	6.50	6.50	Concord/Kannapolis/Cabarrus Co.
NWR-1	W	PW/WU	Lake Rhodhiss	1.31	1.48	1.36	1.36	1.36	1.35	1.35	Town of Granite Falls
NWR-2	W	PW/WU	Lake Rhodhiss	7.41	8.09	7.46	7.90	8.03	8.16	8.29	City of Lenoir
NWR-3	W	PW/WU	Lake Rhodhiss	7.16	9.26	10.72	11.09	11.48	11.87	12.25	City of Morganton
NWR-4	W	PW/WU	Lake Rhodhiss	2.66	3.52	3.56	3.60	3.65	3.69	3.73	Town of Valdese
SWW-1	W	PW/WU	Lake Wateree	1.92	-	-	-	-	-	-	Camden
SWW-2	W	PW/WU	Lake Wateree	2.54	-	-	-	-	-	-	Lugoff Elgin Water Authority
NWY-6	W	PW/WU	Lake Wylie	2.05	2.18	2.55	3.08	3.73	4.44	5.15	City of Belmont
NWY-7	W	PW/WU	Lake Wylie	1.25	1.54	2.13	2.22	2.29	2.35	2.42	Bessemer City
NWY-8	W	PW/WU	Lake Wylie	ND	-	-	-	-	-	-	Bessemer City
NWY-9	W	PW/WU	Lake Wylie	0.75	0.80	0.90	1.02	1.16	1.31	1.47	City of Cherryville
NWY-10	W	PW/WU	Lake Wylie	0.57	0.58	0.59	0.60	0.61	0.63	0.64	Town of Dallas
NWY-12	W	PW/WU	Lake Wylie	2.68	4.46	4.80	5.15	5.37	5.54	5.71	City of Lincolnnton
NWY-13	W	PW/WU	Lake Wylie	4.20	4.86	5.06	5.16	5.26	5.37	5.47	City of Newton
SWY-1	W	PW/WU	Lake Wylie	21.46	-	-	-	-	-	-	Rock Hill
NWL-1	W	PW/WU	Lookout Shoals Lake	2.82	5.13	5.34	5.66	6.02	6.39	6.76	City of Statesville
NWM-1	W	PW/WU	Mountain Island Lake	90.28	109.48	135.24	157.54	179.83	202.12	224.42	Charlotte Water
NWM-2	W	PW/WU	Mountain Island Lake	18.51	19.11	17.79	19.40	21.58	24.02	26.46	Two River Utilities/Gastonia
NWM-3	W	PW/WU	Mountain Island Lake	2.71	3.73	2.59	2.99	3.46	3.98	4.49	City of Mount Holly

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Appendix B – Agricultural and Irrigation Withdrawal and Return Detail Sheets

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ID No.	NWF-5	Category	Agricultural/Irrigation
Entity	Firethorne Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Fishing Creek Reservoir
Contact	Tyler Lacik	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.01	0.01	0.01	0.12	0.14	0.17	0.17	0.17	0.05	0.10	0.04	0.01	0.08
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.00	--	0.02	0.05	0.10	0.22	0.17	0.08	0.08	0.05	0.04	0.00	0.07
2013	0.00	0.00	0.00	0.03	0.06	0.07	0.03	0.05	0.12	0.08	0.01	0.00	0.04
2014	0.00	--	0.00	0.03	0.11	0.15	0.12	0.11	0.06	0.04	0.01	0.00	0.05
2015	0.00	0.00	0.00	0.01	0.15	0.14	0.22	0.16	0.08	0.01	0.00	0.00	0.07
2016	0.00	0.00	0.01	0.10	0.06	0.17	0.19	0.14	0.11	0.08	0.06	0.00	0.08
2017	--	0.01	0.02	0.09	0.12	0.19	0.18	0.14	0.11	0.04	0.01	0.01	0.08
2018	0.01	0.00	0.00	0.10	0.16	0.22	0.21	0.15	0.10	0.04	0.01	0.00	0.08
2019	0.06	0.06	0.05	0.13	0.23	0.15	0.18	0.16	0.14	0.11	0.03	0.03	0.11
2020	0.01	0.00	0.05	0.11	0.10	0.22	0.25	0.13	0.12	0.09	0.03	0.03	0.09

Data Source: NC Water Withdrawal and Transfer Database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.09
2025	0.09
2035	0.09
2045	0.09
2055	0.09
2065	0.09
2075	0.09

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.07
2025	0.07
2035	0.07
2045	0.07
2055	0.07
2065	0.07
2075	0.07

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.12	Jul	2.30
Feb	0.11	Aug	1.73
Mar	0.23	Sep	1.29
Apr	1.02	Oct	0.82
May	1.66	Nov	0.30
Jun	2.27	Dec	0.11

ID No.	NWF-3	Category	Agricultural/Irrigation
Entity	Carmel Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Fishing Creek Reservoir
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.02	0.08	0.26	0.18	0.21	0.14	0.27	0.28	0.46	0.34	0.14	0.02	0.20
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.03	0.02	0.15	0.21	0.53	0.75	0.69	0.38	0.33	0.25	0.18	0.19	0.31
2013	0.09	0.03	0.14	0.09	0.33	0.22	0.14	0.41	0.58	0.31	0.05	0.02	0.20
2014	0.02	--	0.13	0.07	0.50	0.47	0.62	0.55	0.22	0.34	0.10	0.01	0.25
2015	0.03	0.02	0.02	0.16	0.65	0.68	0.76	0.82	0.36	0.12	0.01	--	0.30
2016	0.02	0.00	0.16	0.45	0.61	0.75	0.92	0.79	0.14	0.41	0.27	0.02	0.38
2017	--	--	--	0.40	--	0.60	0.75	0.75	0.60	0.20	0.30	0.06	0.31
2018	--	--	0.05	0.18	0.50	0.75	0.65	0.65	0.18	0.06	--	--	0.25
2019	0.01	0.05	0.30	0.50	0.60	0.75	0.75	0.60	0.75	0.50	0.10	0.01	0.41
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source:

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
No records in the 2020 WWATR database. Average of 2015-2019 was used forecast projection
--

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.33	Base Year	0.29	Jan	0.08	Jul	2.12
2025	0.33	2025	0.29	Feb	0.08	Aug	1.99
2035	0.33	2035	0.29	Mar	0.46	Sep	1.38
2045	0.33	2045	0.29	Apr	0.85	Oct	0.96
2055	0.33	2055	0.29	May	1.50	Nov	0.44
2065	0.33	2065	0.29	Jun	1.95	Dec	0.13
2075	0.33	2075	0.29				

ID No.	NWF-10	Category	Agricultural/Irrigation
Entity	TPC at Pipe Glen	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Fishing Creek Reservoir
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	0.06	0.08	0.26	0.20	0.40	0.40	0.38	0.40	0.20	0.14	--	0.21
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	--	0.00	0.00	0.00	0.31	0.32	0.47	0.41	0.19	0.01	0.01	0.00	0.14
2016	0.02	0.02	0.06	0.24	0.24	0.47	0.39	0.40	0.44	0.10	0.12	0.07	0.21
2017	0.01	0.03	0.04	0.11	0.26	0.31	0.44	0.31	0.29	0.23	0.10	0.02	0.18
2018	0.03	0.09	0.10	0.18	0.25	0.50	0.42	0.34	0.20	0.20	0.12	0.04	0.21
2019	0.02	0.02	0.03	0.16	0.50	0.45	0.45	0.34	0.47	0.05	0.06	0.01	0.21
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
No records provided on the 2020 WWATR database. Average demand from 2015-2019 was leveraged for basis of forecast of initial forecast. Base Year was set to average flow 2006-2020
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.19
2025	0.19
2035	0.19
2045	0.19
2055	0.19
2065	0.19
2075	0.19

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.19
2025	0.19
2035	0.19
2045	0.19
2055	0.19
2065	0.19
2075	0.19

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.06	Jul	2.19
Feb	0.19	Aug	1.86
Mar	0.26	Sep	1.70
Apr	0.81	Oct	0.68
May	1.51	Nov	0.47
Jun	2.10	Dec	0.13

ID No.	NWH-5	Category	Agricultural/Irrigation
Entity	Lake Hickory Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Hickory
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	--	0.01	0.18	0.39	0.12	0.53	0.52	0.50	0.02	0.02	--	0.19
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00
2013	--	--	0.01	0.01	0.16	0.29	0.01	0.02	0.27	0.18	0.02	--	0.08
2014	--	--	0.01	0.01	0.16	0.42	0.01	0.02	0.28	0.18	0.02	--	0.09
2015	--	--	0.01	0.02	0.41	0.32	0.38	0.48	0.34	0.02	0.02	--	0.17
2016	--	--	0.01	0.02	0.41	0.32	0.38	0.26	0.33	0.20	0.29	0.01	0.19
2017	--	--	--	0.02	0.41	0.32	0.38	0.26	0.33	0.20	0.29	--	0.18
2018	--	--	--	0.00	0.08	0.36	0.33	0.23	0.33	0.20	0.29	--	0.15
2019	--	--	--	0.01	0.23	0.10	0.25	0.10	0.38	0.48	0.02	--	0.13
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
No records provided on the 2020 WWATR database. Average demand from 2015-2019 was leveraged for basis of forecast.
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.16	Base Year	0.13	Jan	--	Jul	1.92
2025	0.16	2025	0.13	Feb	--	Aug	1.60
2035	0.16	2035	0.13	Mar	0.05	Sep	2.32
2045	0.16	2045	0.13	Apr	0.22	Oct	1.23
2055	0.16	2055	0.13	May	1.90	Nov	0.82
2065	0.16	2065	0.13	Jun	1.89	Dec	0.01
2075	0.16	2075	0.13				

ID No.	NWJ-6	Category	Agricultural/Irrigation
Entity	Buck Creek Trout Farm	Type	Withdrawal
Facility	Buck Creek Trout Farm	Sub-basin	Lake James
Contact	Bill Ross	IBT?	No

Buck Creek Trout Farm

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2013	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2014	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2015	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2016	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2017	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2018	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2019	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2020	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32

Data Source: NC Water withdrawal and tranfer registry database & DMAG Submissions (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	--
NAICS Code	--

State GSP	--
Sector GSP	--
Inflation	--

Applied AGR	0.00%
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Analysis and Projections Notes
Based on available data from NC WWATR database
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.32
2025	0.32
2035	0.32
2045	0.32
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.33
2025	0.33
2035	0.33
2045	0.33
2055	
2065	
2075	

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWJ-13	Category	Agricultural/Irrigation
Entity	Marion Lake Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake James
Contact	William Dameron	IBT?	No

Marion Lake Club, Inc. LLC2012

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	--	0.00	0.08	0.10	0.12	0.12	0.12	0.10	0.03	0.03	--	0.06
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	--	--	--	0.02	0.60	0.60	0.60	0.60	0.60	0.01	--	--	0.25
2013	--	--	--	0.47	0.45	0.47	0.45	0.45	0.47	0.45	--	--	0.27
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	--	--	--	0.10	0.10	0.10	0.10	0.10	0.10	--	--	--	0.05
2016	--	--	--	--	0.03	0.07	0.06	0.04	0.06	0.05	0.01	--	0.03
2017	--	--	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.07	0.02	--	0.02
2018	--	--	0.00	0.01	0.05	0.09	0.07	0.03	0.03	0.01	0.00	0.00	0.02
2019	--	--	0.00	0.01	0.07	0.03	0.03	0.04	0.08	0.05	--	--	0.03
2020	--	--	0.00	0.01	0.03	0.03	0.08	0.02	0.02	0.02	0.00	0.00	0.02

Data Source: Duke (2010-2011); NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.02
2025	0.02
2035	0.02
2045	0.02
2055	0.02
2065	0.02
2075	0.02

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.08
2025	0.08
2035	0.08
2045	0.08
2055	0.08
2065	0.08
2075	0.08

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	--	Jul	2.06
Feb	--	Aug	1.91
Mar	0.03	Sep	1.98
Apr	0.94	Oct	0.93
May	1.93	Nov	0.09
Jun	2.08	Dec	0.00

ID No.	NWN-9	Category	Agricultural/Irrigation
Entity	Trump National Golf Club (Formerly: The Point Lake & Golf Club)	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Norman
Contact	James Sowers	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.02	0.02	0.01	0.14	0.15	0.21	0.23	0.23	0.36	0.14	0.02	0.00	0.13
2011	0.00	0.06	0.00	0.04	0.13	0.30	0.23	0.28	0.14	0.07	0.01	0.00	0.11
2012	0.00	0.03	0.04	0.11	0.16	0.28	0.26	0.19	0.14	0.02	0.02	0.08	0.11
2013	--	--	0.00	0.20	0.15	0.26	0.09	0.16	0.28	0.19	0.02	0.01	0.11
2014	0.06	0.11	0.18	0.14	0.23	0.35	0.34	0.26	0.24	0.22	0.19	0.14	0.20
2015	0.04	0.02	0.07	0.12	0.50	0.46	0.36	0.39	0.23	0.12	0.01	0.07	0.20
2016	0.13	0.07	0.14	0.20	0.18	0.26	0.30	0.20	0.27	0.20	0.18	0.02	0.18
2017	0.02	0.11	0.09	0.17	0.08	0.09	0.33	0.22	0.21	0.13	0.09	0.05	0.13
2018	0.04	0.21	0.17	0.36	0.25	0.35	0.54	0.44	0.40	0.27	0.13	0.07	0.27
2019	0.02	0.10	0.08	0.22	0.28	0.20	0.39	0.39	0.38	0.27	0.12	0.01	0.20
2020	0.01	0.02	0.03	0.18	0.07	0.18	0.27	0.24	0.12	0.23	0.15	0.03	0.13

Data Source: Duke (2010-2011); NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.13
2025	0.13
2035	0.13
2045	0.13
2055	0.13
2065	0.13
2075	0.13

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.16
2025	0.16
2035	0.16
2045	0.16
2055	0.16
2065	0.16
2075	0.16

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.19	Jul	1.88
Feb	0.43	Aug	1.69
Mar	0.45	Sep	1.56
Apr	1.06	Oct	1.04
May	1.23	Nov	0.52
Jun	1.67	Dec	0.27

ID No.	NWN-10	Category	Agricultural/Irrigation
Entity	The Peninsula Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Norman
Contact	Nick McLennan	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	--	0.00	0.07	0.13	0.20	0.19	0.18	0.25	0.10	0.01	0.00	0.09
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	--	--	--	0.05	0.16	0.16	0.05	0.16	0.27	0.11	0.04	0.00	0.08
2014	--	0.01	--	0.07	0.20	0.26	0.30	0.19	0.27	0.17	0.07	0.01	0.13
2015	0.00	0.01	0.01	0.13	0.33	0.36	0.29	0.30	0.22	0.09	0.08	0.01	0.15
2016	0.00	0.04	0.09	0.24	0.17	0.46	0.35	0.29	0.31	0.20	0.14	0.04	0.19
2017	0.01	0.10	0.33	0.08	0.14	0.15	0.29	0.22	0.13	0.11	0.05	0.05	0.14
2018	0.03	0.08	0.01	0.17	0.12	0.25	0.31	0.22	0.16	0.09	0.06	0.01	0.12
2019	--	0.03	0.03	0.09	0.26	0.23	0.35	0.30	0.38	0.18	0.01	0.00	0.16
2020	0.01	--	0.10	0.28	0.56	0.41	0.70	0.50	0.34	0.16	0.06	0.00	0.26

Data Source: Duke (2010-2011); NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP			
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.26	Base Year	0.15	Jan	0.04	Jul	2.11
2025	0.26	2025	0.15	Feb	0.21	Aug	1.78
2035	0.26	2035	0.15	Mar	0.43	Sep	1.75
2045	0.26	2045	0.15	Apr	0.87	Oct	0.91
2055	0.26	2055	0.15	May	1.55	Nov	0.38
2065	0.26	2065	0.15	Jun	1.86	Dec	0.09
2075	0.26	2075	0.15				

ID No.	NWN-12	Category	Agricultural/Irrigation
Entity	Mallard Head Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Norman
Contact	Samuel A. Linker	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	--	--	--	0.06	0.18	0.22	0.12	0.20	0.05	--	--	0.07
2011	--	--	--	--	0.06	0.13	0.16	0.15	0.07	--	--	--	0.05
2012	--	--	--	0.08	0.18	0.26	0.26	0.28	0.31	0.07	--	--	0.12
2013	--	--	--	0.07	0.15	0.22	0.04	0.05	0.19	0.07	0.04	--	0.07
2014	--	--	--	--	0.14	0.17	0.24	0.14	0.61	0.14	--	--	0.12
2015	--	--	--	0.05	0.30	0.27	0.20	0.19	0.18	0.03	--	--	0.10
2016	--	--	0.06	0.06	0.05	0.05	0.06	0.04	0.03	0.05	0.03	--	0.03
2017	--	--	--	--	0.05	0.04	0.06	0.05	0.05	0.05	--	--	0.02
2018	--	--	--	--	0.05	0.07	0.13	0.08	0.06	0.06	--	--	0.04
2019	--	--	--	--	0.06	0.05	0.05	0.08	0.09	0.09	--	--	0.03
2020	--	--	--	--	0.06	0.04	0.10	0.11	--	--	--	--	0.03

Data Source: Duke (2010-2011); NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.03
2025	0.03
2035	0.03
2045	0.03
2055	0.03
2065	0.03
2075	0.03

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.06
2025	0.06
2035	0.06
2045	0.06
2055	0.06
2065	0.06
2075	0.06

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	--	Jul	2.20
Feb	--	Aug	1.87
Mar	0.08	Sep	2.63
Apr	0.38	Oct	0.88
May	1.69	Nov	0.10
Jun	2.13	Dec	--

ID No.	NWR-5	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Withdrawal
Facility	Table Rock State Fish Hatchery	Sub-basin	Lake Rhodhiss
Contact	Jimmy Lowman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2003	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2004	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2005	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2006	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2007	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2008	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2009	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2010	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2011	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2012	1.29	1.72	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.35
2013	1.29	1.29	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.31
2014	1.72	1.29	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.35
2015	1.30	1.30	1.30	1.30	1.30	1.30	0.80	1.00	1.00	1.00	1.00	1.00	1.13
2016	1.18	2.05	2.05	2.05	2.05	1.18	1.04	1.04	1.10	0.89	0.73	1.18	1.38
2017	0.89	1.12	1.61	2.06	2.16	1.78	1.03	1.03	1.03	1.03	1.03	1.03	1.32
2018	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
2019	2.08	2.10	2.10	2.10	2.10	2.40	2.40	1.70	1.00	1.00	1.30	1.50	1.81
2020	1.53	1.65	1.83	1.83	1.83	1.53	1.53	1.89	1.89	1.89	2.10	2.22	1.81

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes													
Based on available historical data from 1999.													
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	1.81	Base Year	1.27	Jan	1.08	Jul	1.02
2025	1.81	2025	1.27	Feb	1.16	Aug	0.81
2035	1.81	2035	1.27	Mar	1.22	Sep	0.77
2045	1.81	2045	1.27	Apr	1.21	Oct	0.80
2055	1.81	2055	1.27	May	1.18	Nov	0.81
2065	1.81	2065	1.27	Jun	1.01	Dec	0.93
2075	1.81	2075	1.27				

ID No.	NWY-18	Category	Agricultural/Irrigation
Entity	Gaston Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Wylie
Contact	Tim Carpenter	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	--	--	0.10	0.20	0.27	0.28	0.23	0.32	0.18	0.20	0.06	--	0.15
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.03	0.03	0.05	0.21	0.16	0.25	0.21	0.14	0.17	0.13	0.04	0.00	0.12
2013	--	--	0.05	0.19	0.24	0.12	0.09	0.14	0.15	0.06	0.04	0.01	0.09
2014	--	0.02	0.09	0.04	0.12	0.13	0.14	0.07	0.12	0.09	0.07	0.03	0.08
2015	--	0.05	0.10	0.02	0.16	0.27	0.20	0.19	0.15	0.04	0.03	--	0.10
2016	--	--	0.05	0.14	0.19	0.25	0.22	0.25	0.21	0.11	0.12	0.03	0.13
2017	--	0.11	0.11	0.09	0.12	0.21	0.18	0.16	0.13	0.09	0.04	0.01	0.10
2018	--	0.00	0.11	0.05	0.18	0.17	0.15	0.01	0.50	1.11	0.00	0.01	0.19
2019	--	--	0.24	0.08	0.21	0.24	0.19	0.14	0.23	0.19	--	--	0.13
2020	--	--	--	0.01	0.10	0.07	0.16	0.14	0.10	0.06	0.03	--	0.06

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.06
2025	0.06
2035	0.06
2045	0.06
2055	0.06
2065	0.06
2075	0.06

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.11
2025	0.11
2035	0.11
2045	0.11
2055	0.11
2065	0.11
2075	0.11

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.03	Jul	1.54
Feb	0.18	Aug	1.36
Mar	0.77	Sep	1.68
Apr	0.89	Oct	1.81
May	1.52	Nov	0.37
Jun	1.73	Dec	0.08

ID No.	NWY-21	Category	Agricultural/Irrigation
Entity	The Palisades Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Wylie
Contact	David Coleman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.01	0.01	0.04	0.09	0.15	0.24	--	0.21	0.09	0.05	0.02	0.01	0.08
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	--	0.02	0.02	0.24	0.24	0.24	0.37	0.24	0.24	--	--	--	0.13
2013	--	--	0.02	0.02	0.20	0.02	0.02	0.20	0.20	0.02	--	--	0.06
2014	--	--	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	--	0.15
2015	--	--	0.02	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.02	--	0.11
2016	--	--	0.02	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.02	--	0.11
2017	--	--	0.02	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.02	--	0.11
2018	--	--	0.02	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.02	--	0.11
2019	--	0.02	0.02	0.03	0.20	0.20	0.20	0.20	0.20	0.20	0.02	--	0.11
2020	--	0.03	0.03	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	--	0.14

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.14	Base Year	0.11	Jan	0.00	Jul	1.65
2025	0.14	2025	0.11	Feb	0.07	Aug	1.88
2035	0.14	2035	0.11	Mar	0.38	Sep	1.77
2045	0.14	2045	0.11	Apr	1.45	Oct	0.69
2055	0.14	2055	0.11	May	1.83	Nov	0.48
2065	0.14	2065	0.11	Jun	1.74	Dec	0.01
2075	0.14	2075	0.11				

ID No.	NWY-23	Category	Agricultural/Irrigation
Entity	Cramer Mountain Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Wylie
Contact	Paul Stroman	IBT?	No

The Cramer Mountain Country Club Inc.2012

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	--	--	--	0.01	0.01	0.03	0.06	0.02	0.01	0.00	0.00	--	0.01
2009	--	--	--	0.01	0.01	0.03	0.06	0.02	0.01	0.00	--	--	0.01
2010	--	--	--	0.01	0.01	0.03	0.06	0.02	0.01	0.00	--	--	0.01
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	0.03	0.04	0.10	0.11	0.12	0.13	0.15	0.22	0.15	0.17	0.04	0.02	0.11
2017	0.03	0.03	0.02	0.06	0.10	0.13	0.11	0.10	0.05	0.02	0.04	0.02	0.06
2018	--	--	0.02	0.04	0.07	0.08	0.14	0.13	0.08	0.03	0.02	0.01	0.05
2019	--	--	0.02	0.03	0.13	0.07	0.11	0.07	0.15	0.13	0.05	--	0.06
2020	--	--	0.01	0.04	0.05	0.07	0.08	0.08	0.04	0.04	0.02	0.01	0.04

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020) & DMAG Submissions

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	--
NAICS Code	--

State GSP	--
Sector GSP	--
Inflation	--

Applied AGR	0.00%
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Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.04
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.04
2075	0.04

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.04
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.04
2075	0.04

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.16	Jul	2.16
Feb	0.19	Aug	1.89
Mar	0.45	Sep	1.44
Apr	0.91	Oct	1.12
May	1.39	Nov	0.45
Jun	1.61	Dec	0.17

ID No.	NRJ-9	Category	Agricultural/Irrigation
Entity	Buck Creek Trout Farm	Type	Return
Facility	Buck Creek Trout Farm	Sub-basin	Lake James
Contact	Bill Ross	IBT?	No

HISTORICAL DATA SUMMARY

Buck Creek Trout Farm 2012

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2013	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2014	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2015	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2016	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2017	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2018	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2019	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2020	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	--
NAICS Code	--

State GSP	--
Sector GSP	--
Inflation	--

Applied AGR	0.00%
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Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.32
2025	0.32
2035	0.32
2045	0.32
2055	0.32
2065	0.32
2075	0.32

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.33
2025	0.33
2035	0.33
2045	0.33
2055	0.33
2065	0.33
2075	0.33

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NRJ-11	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Return
Facility	Armstrong State Fish Hatchery - Upper	Sub-basin	Lake James
Contact	Jimmy Lowman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2003	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2004	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2005	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2006	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2007	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2008	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2009	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2010	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2011	1.04	1.04	0.78	0.78	0.78	0.73	0.69	0.60	0.52	0.60	0.69	0.78	0.75
2012	1.20	1.20	1.20	1.20	1.20	1.20	0.72	0.83	0.62	1.15	1.10	1.08	1.06
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	1.20	1.20	1.20	1.20	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.84
2015	0.33	0.33	1.00	1.00	1.00	0.67	0.67	0.50	0.50	0.67	0.67	0.67	0.67
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes													
Based on available historical data from 1999.													
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	ND
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	1.27	Jul	0.87
Feb	1.27	Aug	0.79
Mar	1.14	Sep	0.69
Apr	1.14	Oct	0.86
May	1.07	Nov	0.93
Jun	0.98	Dec	1.00

ID No.	NRJ-12	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Return
Facility	Armstrong State Fish Hatchery - Lower	Sub-basin	Lake James
Contact	Jimmy Lowman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2003	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2004	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2005	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2006	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2007	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2008	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2009	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2010	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2011	4.03	4.03	3.60	3.60	3.50	2.88	2.74	2.59	2.59	2.74	3.17	3.67	3.26
2012	5.20	5.20	5.20	5.20	5.20	5.20	3.11	3.61	2.67	4.98	4.77	4.70	4.59
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	5.20	5.20	5.20	5.20	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	3.65
2015	1.44	1.44	4.33	4.33	4.33	2.89	2.89	2.17	2.17	2.89	2.89	2.89	2.90
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
Based on available historical data from 1999.
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PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	ND
2025	0.00
2035	0.00
2045	0.00
2055	--
2065	--
2075	--

Using Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	0.00
2035	0.00
2045	0.00
2055	0.00
2065	0.00
2075	0.00

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	1.17	Jul	0.83
Feb	1.17	Aug	0.79
Mar	1.18	Sep	0.76
Apr	1.18	Oct	0.89
May	1.09	Nov	0.96
Jun	0.92	Dec	1.06

ID No.	NRJ-13	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Return
Facility	Armstrong State Fish Hatchery	Sub-basin	Lake James
Contact	Jimmy Lowman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2003	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2004	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2005	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2006	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2007	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2008	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2009	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2010	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2011	0.69	0.69	0.52	0.52	0.52	0.49	0.46	0.40	0.35	0.40	0.46	0.52	0.50
2012	0.80	0.80	0.80	0.80	0.80	0.80	0.48	0.56	0.41	0.77	0.73	0.72	0.70
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	0.80	0.80	0.80	0.80	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.56
2015	0.22	0.22	0.67	0.67	0.67	0.44	0.44	0.33	0.33	0.44	0.44	0.44	0.45
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes													
Based on available historical data from 1999.													
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PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	ND
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	1.26	Jul	0.87
Feb	1.26	Aug	0.79
Mar	1.14	Sep	0.70
Apr	1.14	Oct	0.86
May	1.07	Nov	0.93
Jun	0.98	Dec	1.00

ID No.	NRJ-14	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Return
Facility	Marion State Fish Hatchery	Sub-basin	Lake James
Contact	Jimmy Lowman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2003	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2004	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2005	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2006	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2007	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2008	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2009	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2010	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2011	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2012	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2013	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2014	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2015	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2016	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2017	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2018	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2019	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23
2020	0.28	0.28	0.28	0.28	0.28	0.28	--	--	0.28	0.28	0.28	0.28	0.23

Data Source: <Source>; <Contact Person>; <Date>

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	--
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
Distance between the withdrawal and Return is about 50' to 75' downstream. This is a pass-thru facility.
Utilizes flow from John's Creek (a.k.a. Fish Hatchery Creek). No planned expansions.
Facility does not record water withdrawals or returns. For this analysis it is assumed that all water withdrawn is returned. Therefore,
withdrawals and returns both assigned zero values.
Based on available historical data from 1999.

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.23
2025	-
2035	-
2045	-
2055	-
2065	-
2075	-

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.23
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	1.20	Jul	--
Feb	1.20	Aug	--
Mar	1.20	Sep	1.20
Apr	1.20	Oct	1.20
May	1.20	Nov	1.20
Jun	1.20	Dec	1.20

ID No.	NRR-8	Category	Agricultural/Irrigation
Entity	NC Wildlife Resources Commission	Type	Return
Facility	Table Rock State Fish Hatchery	Sub-basin	Lake Rhodhiss
Contact	Jimmy Lowman	IBT?	No

Table Rock State Fish Hatchery

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2003	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2004	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2005	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2006	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2007	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2008	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2009	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2010	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2011	1.21	1.25	1.19	1.08	1.17	0.84	1.17	0.50	0.49	0.61	0.61	0.86	0.91
2012	1.29	1.72	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.35
2013	1.29	1.29	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.31
2014	1.72	1.29	1.72	1.72	1.29	1.29	1.19	1.19	1.19	1.19	1.19	1.19	1.35
2015	1.30	1.30	1.30	1.30	1.30	1.30	0.80	1.00	1.00	1.00	1.00	1.00	1.13
2016	1.18	2.05	2.05	2.05	2.05	1.18	1.04	1.04	1.10	0.89	0.73	1.18	1.38
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
2019	2.08	2.10	2.10	2.10	2.10	2.40	2.40	1.70	1.00	1.00	1.30	1.50	1.81
2020	1.53	1.65	1.83	1.83	1.83	1.53	1.53	1.89	1.89	1.89	2.10	2.22	1.81

Data Source: NC Water withdrawal and tranfer registry database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	--
NAICS Code	--

State GSP	--
Sector GSP	--
Inflation	--

Applied AGR	0.00%
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Analysis and Projections Notes
Based on available historical data from 1999.
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.81
2025	1.81
2035	1.81
2045	1.81
2055	1.81
2065	1.81
2075	1.81

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.26
2025	1.26
2035	1.26
2045	1.26
2055	1.26
2065	1.26
2075	1.26

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.11	Jul	1.04
Feb	1.19	Aug	0.81
Mar	1.22	Sep	0.77
Apr	1.19	Oct	0.80
May	1.14	Nov	0.82
Jun	0.98	Dec	0.94

ID No.	SWY-6	Category	Agricultural/Irrigation
Entity	River Hills Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Wylie
Contact	Jason Bradley	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	0.00	0.00	0.05	0.09	0.30	0.17	0.40	0.42	0.36	0.14	0.03	0.02	0.17
2008	0.00	0.00	0.02	0.01	0.21	0.37	0.18	0.15	0.03	0.03	0.02	0.00	0.09
2009	0.00	0.00	0.03	0.07	0.05	0.20	0.31	0.16	0.10	0.03	0.01	0.00	0.08
2010	0.00	--	0.00	0.04	0.07	0.22	0.25	0.17	0.21	0.06	0.00	0.00	0.09
2011	0.00	0.02	0.01	0.02	0.05	0.14	0.15	0.15	0.09	0.00	0.00	0.00	0.05
2012	0.00	0.01	0.01	0.09	0.10	0.16	0.31	0.15	0.06	0.05	0.04	0.00	0.08
2013	0.00	0.00	0.01	0.05	0.05	0.02	0.02	0.09	0.19	0.06	0.02	0.00	0.04
2014	0.01	0.02	0.02	0.08	0.25	0.18	0.11	0.16	0.05	0.15	0.03	0.03	0.09
2015	0.00	0.00	0.01	0.04	0.26	0.20	0.20	0.14	0.10	0.01	0.00	0.00	0.08
2016	0.00	0.00	0.03	0.11	0.06	0.19	0.21	0.20	0.12	0.14	0.01	0.00	0.09
2017	0.02	0.08	0.02	0.05	0.07	0.05	0.22	0.18	0.19	0.06	0.03	0.00	0.08
2018	0.01	0.00	0.01	0.03	0.08	0.21	0.22	0.18	0.10	0.07	0.04	0.00	0.08
2019	0.00	0.00	0.00	0.04	0.13	0.11	0.22	0.03	0.25	0.11	0.00	--	0.08
2020	0.00	0.00	0.02	0.02	0.01	0.09	0.15	0.05	0.04	0.01	0.03	0.02	0.04

Data Source: SC DHEC Catawba Water Withdrawal Database & Entity & DMAG submissin (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.04
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.04
2075	0.04

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.08
2025	0.08
2035	0.08
2045	0.08
2055	0.08
2065	0.08
2075	0.08

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	0.04	Jul	2.62
Feb	0.13	Aug	1.96
Mar	0.22	Sep	1.68
Apr	0.65	Oct	0.81
May	1.49	Nov	0.23
Jun	2.04	Dec	0.08

ID No.	SWY-7	Category	Agricultural/Irrigation
Entity	Tega Cay Golf Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake Wylie
Contact	Tommy Moore	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	--	0.02	0.02	0.03	0.13	0.31	0.25	0.16	0.16	0.07	0.02	0.02	0.10
2009	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	0.10	0.11	0.26	0.27	0.35	0.37	0.35	0.35	0.37	0.26	0.27	0.10	0.26
2011	0.10	0.11	0.16	0.23	0.31	0.37	0.34	0.31	0.30	0.26	0.25	0.10	0.24
2012	--	0.05	0.16	0.17	0.21	0.33	0.26	0.16	0.10	0.10	0.07	0.06	0.14
2013	--	0.02	0.11	0.13	0.19	0.18	0.19	0.15	0.07	0.10	0.05	0.03	0.10
2014	0.00	0.01	0.03	0.07	0.13	0.27	0.26	0.32	0.20	0.05	0.01	0.00	0.11
2015	--	--	0.09	0.13	0.24	0.26	0.25	0.25	0.21	0.01	--	--	0.12
2016	--	--	0.06	0.11	0.25	0.29	0.32	0.34	0.27	0.09	--	--	0.14
2017	--	--	0.06	0.11	0.24	0.25	0.25	0.26	0.25	0.04	0.01	--	0.12
2018	--	--	0.07	0.10	0.22	0.26	0.25	0.26	0.18	0.02	--	--	0.11
2019	--	--	0.06	0.10	0.21	0.25	0.25	0.25	0.21	0.10	0.05	--	0.12
2020	--	--	--	0.06	0.20	0.24	0.24	0.25	0.22	0.11	0.06	0.01	0.12

Data Source: SC DHEC Catawba Water Withdrawal Database & Entity

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
--

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.12
2025	0.12
2035	0.12
2045	0.12
2055	0.12
2065	0.12
2075	0.12

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.14
2025	0.14
2035	0.14
2045	0.14
2055	0.14
2065	0.14
2075	0.14

Monthly Coefficients			
Month	Coefficien	Month	Coefficient
Jan	0.12	Jul	1.90
Feb	0.19	Aug	1.81
Mar	0.64	Sep	1.49
Apr	0.89	Oct	0.71
May	1.57	Nov	0.46
Jun	1.99	Dec	0.19

ID No.	NWJ-17	Category	Agricultural/Irrigation
Entity	Grandfather Golf and Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Lake James
Contact	Pete Gerdon	IBT?	0

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	--	--	0.03	0.05	0.05	0.15	0.05	0.05	--	--	--	--	0.03
2013	--	--	0.01	0.05	0.05	--	--	0.05	0.15	0.05	--	--	0.03
2014	--	--	0.10	0.05	0.05	0.10	0.05	0.15	0.15	0.05	--	--	0.06
2015	--	--	0.10	0.10	0.15	0.15	0.35	0.35	0.25	0.15	--	--	0.13
2016	--	--	0.05	0.30	0.10	0.35	0.35	0.15	0.35	0.10	0.15	0.05	0.16
2017	--	--	--	0.65	0.41	1.40	1.45	2.80	1.20	1.40	0.18	--	0.80
2018	0.15	0.15	0.14	0.63	1.52	1.74	4.84	1.63	0.17	0.15	0.14	0.12	0.96
2019	0.16	0.15	--	0.03	0.44	0.21	0.24	0.11	0.64	0.14	--	--	0.18
2020	--	--	--	0.04	1.85	1.06	0.98	1.01	0.28	0.81	0.13	--	0.52

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes													
--													
--													
--													
--													
--													

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.52
2025	0.52
2035	0.52
2045	0.52
2055	0.52
2065	0.52
2075	0.52

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.32
2025	0.32
2035	0.32
2045	0.32
2055	0.32
2065	0.32
2075	0.32

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.11	Jul	2.90
Feb	0.10	Aug	2.20
Mar	0.15	Sep	1.11
Apr	0.66	Oct	1.00
May	1.61	Nov	0.21
Jun	1.80	Dec	0.06

ID No.	NWM-8	Category	Agricultural/Irrigation
Entity	Birkdale Golf Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Mountain Island Lake
Contact	Ben Albrecht	IBT?	0

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	0.02	0.02	0.09	0.19	0.27	0.28	0.31	0.35	0.30	0.11	0.05	0.02	0.17
2019	0.02	0.02	0.08	0.21	0.30	0.23	0.33	0.35	0.35	0.13	0.05	0.02	0.17
2020	0.02	0.02	0.08	0.21	0.30	0.23	0.33	0.33	0.33	0.13	0.05	0.02	0.17

Data Source: NC Water Withdrawal and Transfer Registry (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes													
--													
--													
--													
--													
--													

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.17
2025	0.17
2035	0.17
2045	0.17
2055	0.17
2065	0.17
2075	0.17

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.17
2025	0.17
2035	0.17
2045	0.17
2055	0.17
2065	0.17
2075	0.17

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.09	Jul	1.89
Feb	0.09	Aug	2.02
Mar	0.49	Sep	1.92
Apr	1.20	Oct	0.71
May	1.72	Nov	0.29
Jun	1.43	Dec	0.09

ID No.	SWB-3	Category	Agricultural/Irrigation
Entity	Columbia Country Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.01	0.04	0.16	0.18	0.20	0.27	0.42	0.19	0.19	0.13	0.13	0.03	0.16
2013	--	--	0.02	0.05	0.21	0.07	0.03	0.21	0.25	0.05	0.04	--	0.08
2014	0.00	0.02	0.01	0.11	0.29	0.38	0.46	0.39	0.20	0.12	0.02	0.02	0.17
2015	--	0.02	0.07	0.12	0.58	0.50	0.55	0.23	0.05	--	--	--	0.18
2016	--	--	0.04	0.06	0.34	0.50	0.45	0.28	0.16	0.15	0.09	--	0.17
2017	--	0.06	0.29	0.34	0.31	0.30	0.33	0.35	0.23	0.19	0.06	0.03	0.21
2018	0.02	0.08	0.02	0.01	0.27	0.43	0.41	0.15	0.18	0.04	0.01	0.00	0.14
2019	0.00	0.02	0.04	0.03	0.20	0.20	0.37	0.31	0.40	0.10	0.01	0.01	0.14
2020	0.00	0.02	0.04	0.03	0.20	0.20	0.37	0.31	0.40	0.10	0.01	0.01	0.14

Data Source: SC DHEC

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP		Applied AGR	0.09%
SIC Code		Sector GSP	0.09%		
NAICS Code	11	Inflation	--		

Analysis and Projections Notes	
AGR based on Sector GSP: 0.09%	
--	
--	

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.14	Base Year	0.15	Jan	0.03	Jul	2.44
2025	0.14	2025	0.15	Feb	0.18	Aug	1.73
2035	0.14	2035	0.16	Mar	0.50	Sep	1.48
2045	0.14	2045	0.16	Apr	0.68	Oct	0.63
2055	0.15	2055	0.16	May	1.87	Nov	0.28
2065	0.15	2065	0.16	Jun	2.05	Dec	0.07
2075	0.15	2075	0.16				

ID No.	SWB-6	Category	Agricultural/Irrigation
Entity	Lost Lake Waterworks, LLC	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.01	0.03	0.06	0.11	0.13	0.20	0.27	0.13	0.14	0.13	0.10	0.03	0.11
2013	0.01	0.02	0.06	0.14	0.13	0.20	0.25	0.13	0.15	0.13	0.09	0.03	0.11
2014	0.02	0.03	0.06	0.13	0.16	0.16	0.21	0.15	0.20	0.13	0.10	0.06	0.12
2015	0.02	0.03	0.07	0.11	0.14	0.20	0.20	0.19	0.16	0.02	0.04	0.05	0.10
2016	0.00	0.00	0.03	0.12	0.15	0.20	0.24	0.17	0.07	0.08	0.09	0.00	0.10
2017	0.01	0.02	0.01	0.06	0.07	0.11	0.14	0.18	0.07	0.04	0.05	0.01	0.06
2018	0.02	0.03	0.07	0.12	0.14	0.20	0.20	0.19	0.16	0.02	0.04	0.05	0.10
2019	0.03	0.05	0.11	0.34	0.36	0.53	0.72	0.53	0.47	0.28	0.23	0.06	0.31
2020	0.06	0.07	0.06	0.20	0.48	0.24	0.51	0.43	0.41	0.25	0.14	0.05	0.24

Data Source: SC DHEC

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP		Applied AGR	0.09%
SIC Code		Sector GSP	0.09%		
NAICS Code	11	Inflation	--		

Analysis and Projections Notes	
AGR based on Sector GSP: 0.09%	
--	
--	

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.24	Base Year	0.14	Jan	0.13	Jul	2.17
2025	0.24	2025	0.14	Feb	0.22	Aug	1.66
2035	0.24	2035	0.14	Mar	0.43	Sep	1.47
2045	0.25	2045	0.15	Apr	1.05	Oct	0.86
2055	0.25	2055	0.15	May	1.40	Nov	0.70
2065	0.25	2065	0.15	Jun	1.61	Dec	0.26
2075	0.25	2075	0.15				

ID No.	SWY-8	Category	Agricultural/Irrigation
Entity	Waterford Golf Club	Type	Withdrawal
Facility	Golf Course Irrigation	Sub-basin	Fishing Creek Reservoir
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	0.61	0.74	1.42	2.05	3.15	5.50	5.76	5.69	5.03	2.60	1.51	0.92	2.93
2008	0.08	0.09	0.70	1.56	1.90	2.58	3.05	3.05	3.01	1.22	0.71	0.06	1.50
2009	--	--	1.30	2.00	2.10	2.00	2.50	3.00	2.40	1.10	0.50	--	1.42
2010	--	--	0.85	1.50	2.00	3.00	4.20	4.50	4.00	2.50	0.80	--	1.96
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.20	0.20	0.80	1.60	2.40	3.10	3.10	3.10	2.40	1.60	0.80	0.20	1.63
2013	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2014	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2015	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2016	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2017	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2018	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2019	-	-	-	-	-	-	-	-	-	-	-	-	1.96
2020	-	-	-	-	-	-	-	-	-	-	-	-	1.96

Data Source: RTI SW Flow Study Database, Michele Eddy & DMAG Submission 2012-2020

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	--	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

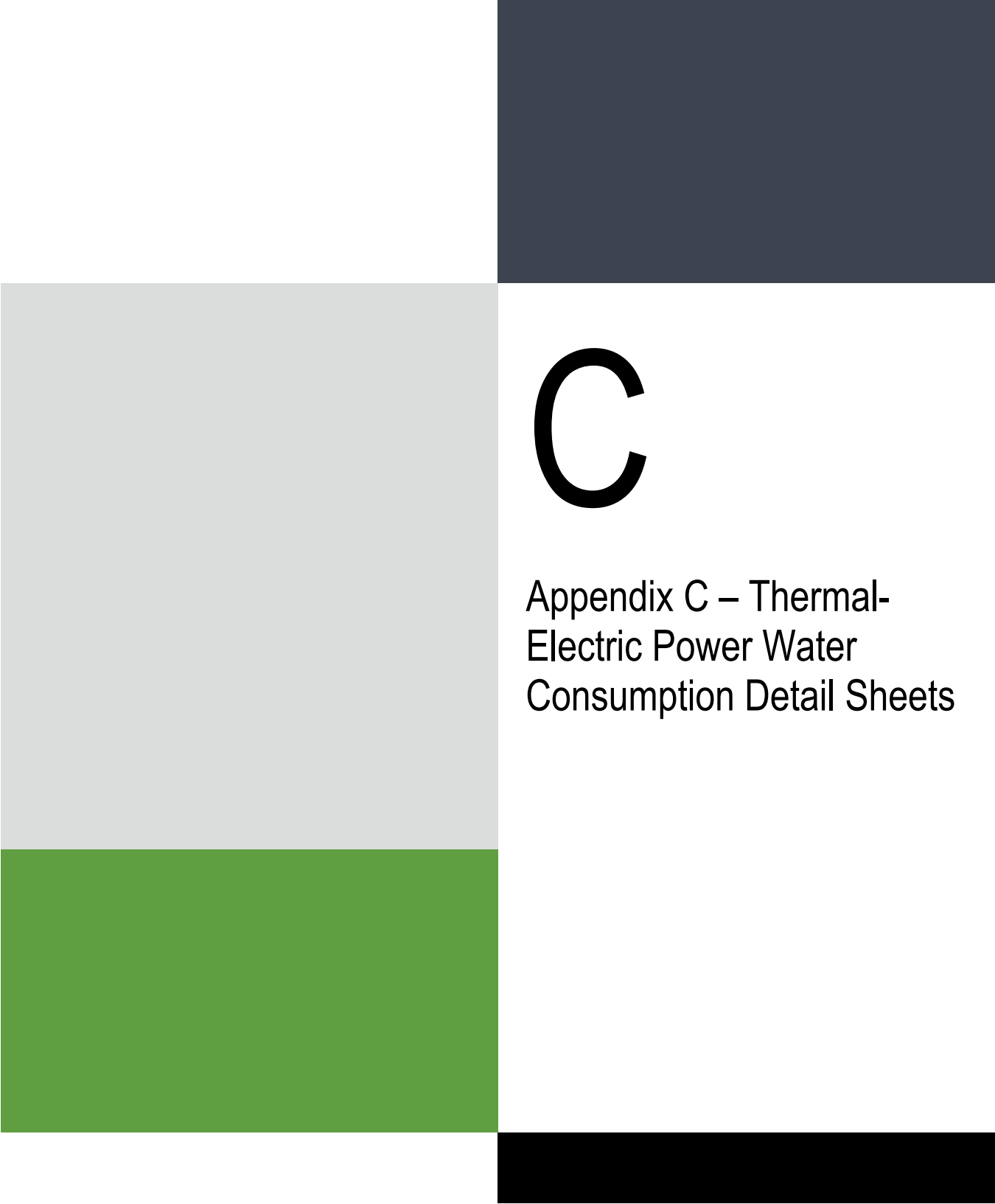
Analysis and Projections Notes
Golf Course appears to still be in operational, but water use is not listed past 2012 on RTI data or information provided by SC DHEC
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.96
2025	1.96
2035	1.96
2045	1.96
2055	1.96
2065	1.96
2075	1.96

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.93
2025	1.93
2035	1.93
2045	1.93
2055	1.93
2065	1.93
2075	1.93

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.04	Jul	0.74
Feb	0.04	Aug	0.77
Mar	0.20	Sep	0.67
Apr	0.35	Oct	0.36
May	0.46	Nov	0.17
Jun	0.64	Dec	0.05

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Appendix C – Thermal- Electric Power Water Consumption Detail Sheets

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New Future Power											
ID	Facility	Type	Basin Name	Category	Projected (MGD) based on Base Year						
					Base	2025	2035	2045	2055	2065	2075
NWJ-5	Future - New (Lake James)	W	Lake James	TEP-F	--	--	--	--	--	--	--
NWH-6	Future - New (Lake Hickory)	W	Lake Hickory	TEP-F	--	--	--	--	--	--	--
NWL-3	Future - New (Lookout Shoals Lake)	W	Lookout Shoals Lake	TEP-F	--	--	--	--	--	--	--
NWN-7	Future - New (MNS Site) (Lake Norman)	W	Lake Norman	TEP-F	--	--	--	--	--	26.00	26.00
NWN-15	Future - New (Lake Norman)	W	Lake Norman	TEP-F	--	--	6.50	19.50	26.00	26.00	26.00
SWF-9	Future - New (Fishing Creek Reservoir)	W	Fishing Creek Reservoir	TEP-F	--	--	--	--	--	--	--
SWW-3	Future - New (Lake Wateree)	W	Lake Wateree	TEP-F	--	--	6.50	19.50	26.00	26.00	26.00
SWY-4	Future - New (Lake Wylie)	W	Lake Wylie	TEP-F	--	--	--	--	--	--	26.00
SWB-8	Future - New (Below Wateree)	W	Below Wateree	TEP-F	--	--	--	--	--	--	--
NWN-5	Marshall Steam Station	W	Lake Norman	TEP	9.00	9.00	9.00	--	--	--	--
NWN-6	McGuire Nuclear Station	W	Lake Norman	TEP-F	21.00	21.00	21.00	21.00	21.00	--	--
NWM-4	Riverbend Steam Station	W	Mountain Island Lake	TEP	--	--	--	--	--	--	--
NWy-16	Allen Steam Plant	W	Lake Wylie	TEP	4.00	--	--	--	--	--	--
NWy-17	Lincoln Combustion Turbine Facility	W	Lake Wylie	TEP	--	--	--	--	--	--	--
SWY-3	Catawba Nuclear Station	W	Lake Wylie	TEP	33.00	33.00	33.00	33.00	33.00	33.00	--
NRN-10	Marshall Steam Station	R	Lake Norman	TEP	--	--	--	--	--	--	--
NRN-11	McGuire Nuclear Power Plant	R	Lake Norman	TEP	--	--	--	--	--	--	--
NRM-3	McGuire Nuclear Power Plant	R	Mountain Island Lake	TEP	--	--	--	--	--	--	--
NRM-4	Riverbend Steam Station	R	Mountain Island Lake	TEP	--	--	--	--	--	--	--
NRY-35	Allen Steam Plant	R	Lake Wylie	TEP	--	--	--	--	--	--	--
NRY-36	Lincoln Combustion Turbine Facility	R	Lake Wylie	TEP	--	--	--	--	--	--	--
SRY-3	Catawba Nuclear Station	R	Lake Wylie	TEP	--	--	--	--	--	--	--
SWB-7	Dominion Energy Wateree Station	W	Below Wateree	TEP	10.77	10.77	10.77	10.77	10.77	10.77	10.77
SRB-3	Dominion Energy Wateree Station	R	Below Wateree	TEP	2.83	2.83	2.83	2.83	2.83	2.83	2.83

Source: Duke Energy; Ed Bruce/Jeff Lineberger; 11/2022

ID No.	NWJ-5	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Lake James)	Sub-basin	Lake James
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	--	--	--	--	--	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022. Updated 11/29/2022

BACKGROUND INFORMATION

No future power generating facility is planned between present and 2075 at Lake James.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	--	Base Year	--	Jan	--	Jul	--
2025	--	2025	--	Feb	--	Aug	--
2035	--	2035	--	Mar	--	Sep	--
2045	--	2045	--	Apr	--	Oct	--
2055	--	2055	--	May	--	Nov	--
2065	--	2065	--	Jun	--	Dec	--
2075	--	2075	--				

ID No.	NWN-5	Category	Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Marshall Steam Station	Sub-basin	Lake Norman
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

NET Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	12.60	12.86	13.25	14.09	11.12	13.70	14.61	14.74	13.64	12.21	10.92	12.60	13.03
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	15.04	15.54	11.11	8.94	11.29	12.65	13.55	15.02	12.24	7.71	7.40	11.95	11.86
2007	12.01	15.24	12.83	12.31	12.25	13.95	11.15	14.64	11.74	14.59	14.64	15.00	13.35
2008	15.94	13.43	11.76	12.98	15.29	16.00	16.23	16.25	13.77	8.92	10.28	10.38	13.44
2009	15.45	12.72	12.35	10.70	12.64	13.93	15.85	18.24	13.14	8.08	15.10	16.36	13.73
2010	15.67	15.64	14.96	15.17	13.60	15.92	15.33	16.46	13.45	7.36	8.70	15.03	13.93
2011	14.50	10.47	12.12	12.79	12.82	14.95	16.20	14.59	12.44	9.90	9.83	6.20	12.25
2012	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2013	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2014	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2015	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2016	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2017	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2018	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2019	--	--	--	--	--	--	--	--	--	--	--	--	9.00
2020	--	--	--	--	--	--	--	--	--	--	--	--	9.00

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022. Updated 11/29/2022

BACKGROUND INFORMATION

Water use historical data and projections for Marshall Steam Station have been developed by Duke Energy for the purpose of this Water Supply Master Plan. Assumptions for Marshall Steam Station assume that the existing facility's two units will be retired in 2040, and a total of four new 2x1 combined cycle plant units will be added (2 units in 2041 and 2 additional units in 2042).

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
--2012 - 2020: Assume existing water use amounts and locations continue until 2020
2020-2035: Average Net Water Loss provided by Ed Bruce
--2045-2075: No additional generation using Catawba-Wataree Basin water through 2075.
Base Year is set to recent historic values because historic values were generated based on assumption.

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	9.00
2025	9.00
2035	9.00
2045	--
2055	--
2065	--
2075	--

Using Base Year	
Year	Flow (MGD)
Base Year	9.00
2025	9.00
2035	9.00
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWN-6	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	McGuire Nuclear Station	Sub-basin	Lake Norman
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

NET Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	26.50	24.56	13.57	25.85	23.91	24.56	25.20	24.56	22.62	24.56	18.10	25.85	23.32
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	26.66	26.59	26.31	25.49	25.27	25.94	26.19	26.53	20.01	13.86	21.01	26.68	24.21
2007	26.68	26.58	15.96	12.47	12.66	24.96	25.60	25.76	25.74	25.79	26.19	26.53	22.89
2008	26.72	26.55	13.79	18.41	25.19	23.77	25.60	25.55	20.64	12.08	19.86	26.11	22.01
2009	26.23	25.53	26.12	25.86	25.10	24.87	25.31	25.67	15.08	20.75	25.89	26.39	24.41
2010	26.31	26.56	18.08	17.20	26.04	23.54	25.81	25.44	25.44	25.62	25.50	27.45	24.41
2011	9.54	15.12	13.76	22.96	23.96	23.36	23.76	23.78	18.76	17.94	23.57	24.32	20.09
2012	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2013	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2014	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2015	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2016	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2017	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2018	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2019	--	--	--	--	--	--	--	--	--	--	--	--	21.00
2020	-	-	-	-	-	-	-	-	-	-	-	-	21.00

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022. Updated 11/29/2022

BACKGROUND INFORMATION

Water use historical data and projections for McGuire Nuclear Station have been developed by Duke Energy for the purpose of this IWRP.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
2012-2020: Assumed values are the same as 2020
-2020- 2055: No additional generation at McGuire using Catawba-Wateree Basin water through 2055
New Nuclear Site in operation 2065-2075 and flows are recorded on detail sheet NWN-7
Base Year is set to recent historic values because historic values were generated based on assumption.

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	21.00
2025	21.00
2035	21.00
2045	21.00
2055	21.00
2065	
2075	

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	21.00
2025	21.00
2035	21.00
2045	21.00
2055	21.00
2065	
2075	

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWH-6	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Lake Hickory)	Sub-basin	Lake Hickory
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	--	--	--	--	--	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 4/27/2012. Updated 11/29/2022

BACKGROUND INFORMATION

No future power generating facility is planned between present and 2075 at Lake Hickory.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
Included in forecast for comparative purposes
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PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	--	Jul	--
Feb	--	Aug	--
Mar	--	Sep	--
Apr	--	Oct	--
May	--	Nov	--
Jun	--	Dec	--

ID No.	NWN-7	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (MNS Site) (Lake Norman)	Sub-basin	Lake Norman
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	--
2003	-	-	-	-	-	-	-	-	-	-	-	-	--
2004	-	-	-	-	-	-	-	-	-	-	-	-	--
2005	-	-	-	-	-	-	-	-	-	-	-	-	--
2006	-	-	-	-	-	-	-	-	-	-	-	-	--
2007	-	-	-	-	-	-	-	-	-	-	-	-	--
2008	-	-	-	-	-	-	-	-	-	-	-	-	--
2009	-	-	-	-	-	-	-	-	-	-	-	-	--
2010	-	-	-	-	-	-	-	-	-	-	-	-	--
2011	-	-	-	-	-	-	-	-	-	-	-	-	--
2012	-	-	-	-	-	-	-	-	-	-	-	-	--
2013	-	-	-	-	-	-	-	-	-	-	-	-	--
2014	-	-	-	-	-	-	-	-	-	-	-	-	--
2015	-	-	-	-	-	-	-	-	-	-	-	-	--
2016	-	-	-	-	-	-	-	-	-	-	-	-	--
2017	-	-	-	-	-	-	-	-	-	-	-	-	--
2018	-	-	-	-	-	-	-	-	-	-	-	-	--
2019	-	-	-	-	-	-	-	-	-	-	-	-	--
2020	-	-	-	-	-	-	-	-	-	-	-	-	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022. Updated 11/29/2022

BACKGROUND INFORMATION

Duke Energy provided projections for New Nuclear (MNS site) that should replace the McGuire Site use. Values are provided as net withdrawals.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	26.00
2075	26.00

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	26.00
2075	26.00

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWN-15	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Lake Norman)	Sub-basin	Lake Norman
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	--
2003	-	-	-	-	-	-	-	-	-	-	-	-	--
2004	-	-	-	-	-	-	-	-	-	-	-	-	--
2005	-	-	-	-	-	-	-	-	-	-	-	-	--
2006	-	-	-	-	-	-	-	-	-	-	-	-	--
2007	-	-	-	-	-	-	-	-	-	-	-	-	--
2008	-	-	-	-	-	-	-	-	-	-	-	-	--
2009	-	-	-	-	-	-	-	-	-	-	-	-	--
2010	-	-	-	-	-	-	-	-	-	-	-	-	--
2011	-	-	-	-	-	-	-	-	-	-	-	-	--
2012	-	-	-	-	-	-	-	-	-	-	-	-	--
2013	-	-	-	-	-	-	-	-	-	-	-	-	--
2014	-	-	-	-	-	-	-	-	-	-	-	-	--
2015	-	-	-	-	-	-	-	-	-	-	-	-	--
2016	-	-	-	-	-	-	-	-	-	-	-	-	--
2017	-	-	-	-	-	-	-	-	-	-	-	-	--
2018	-	-	-	-	-	-	-	-	-	-	-	-	--
2019	-	-	-	-	-	-	-	-	-	-	-	-	--
2020	-	-	-	-	-	-	-	-	-	-	-	-	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022. Updated 11/29/2022

BACKGROUND INFORMATION

Duke Energy provided projections for New Nuclear that should replace the McGuire Site use. Values are provided as net withdrawals.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes

PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	6.50
2045	19.50
2055	26.00
2065	26.00
2075	26.00

Using Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	6.50
2045	19.50
2055	26.00
2065	26.00
2075	26.00

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWM-4	Category	Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Riverbend Steam Station	Sub-basin	Mountain Island Lake
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	2.52	2.39	2.13	2.13	2.13	2.71	3.23	3.10	3.04	2.91	1.74	1.87	2.50
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	0.11	1.16	1.20	1.95	1.42	2.64	3.04	3.05	0.42	1.41	1.64	1.27	1.61
2007	0.98	1.79	0.50	1.82	1.83	1.93	2.59	2.50	2.38	1.93	2.39	2.27	1.91
2008	2.30	2.10	2.36	3.00	2.40	3.10	2.57	2.17	1.23	0.29	0.95	0.85	1.94
2009	0.88	0.61	0.39	0.11	0.04	1.25	0.81	1.31	0.21	--	--	0.74	0.53
2010	1.42	1.75	0.46	1.13	1.76	2.44	2.23	2.34	1.04	--	--	1.08	1.30
2011	1.36	0.49	0.21	0.40	1.69	2.12	2.27	2.05	0.12	--	--	--	0.90
2012	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; Updated 11/29/2022

BACKGROUND INFORMATION

Water use historical data and projections for the Riverbend Steam Station have been developed by Duke Energy for the purpose of this Water Supply Master Plan. This facility was decommissioned in 2013. Forecast was therefore not completed. WWATR reports minor use <0.05 MGD in 2011

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
--2013: Riverbend Steam Station units retired. Excluded from future projections.
Facility is included in analysis for comparison to previous forecasts
--

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	--	Jul	--
Feb	--	Aug	--
Mar	--	Sep	--
Apr	--	Oct	--
May	--	Nov	--
Jun	--	Dec	--

ID No.	NWY-16	Category	Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Allen Steam Plant	Sub-basin	Lake Wylie
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

NET Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	4.14	4.72	5.43	6.20	5.62	6.53	7.24	6.98	7.30	7.04	6.20	5.49	6.08
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	2.56	6.25	5.84	5.02	3.89	7.89	6.69	6.21	5.11	8.28	9.76	6.84	6.19
2007	4.21	8.24	6.88	5.41	5.47	7.68	7.35	6.57	7.88	8.58	8.98	7.30	7.03
2008	8.28	7.03	6.23	5.96	7.72	7.90	8.00	7.06	7.69	4.46	6.55	4.91	6.81
2009	6.40	3.55	4.92	4.80	3.11	10.06	6.43	9.42	4.54	0.56	1.76	6.33	5.17
2010	5.99	10.23	6.95	7.75	7.74	9.20	7.87	8.24	8.64	3.31	4.57	8.03	7.35
2011	8.74	5.07	5.71	5.78	8.28	8.02	8.07	8.82	5.09	1.94	2.23	5.81	6.15
2012	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2013	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2014	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2015	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2016	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2017	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2018	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2019	--	--	--	--	--	--	--	--	--	--	--	--	4.00
2020	--	--	--	--	--	--	--	--	--	--	--	--	4.00

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022

BACKGROUND INFORMATION

Water use historical data and projections for the Allen Steam Station have been developed by Duke Energy for the purpose of this Water Supply Master Plan. This facility is planned for retirement by 2025, with new combined cycle plant units planned to be added on the existing site in the 2025-2035 decade.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
--2012 - 2020: Assume existing water use amounts were consistent 2012-2020
--2015-2025: Water use associated with Riverbend Steam Station generation transferred to Allen Steam Plant due to Riverbend retirement
Base Year is set to recent historic values because historic values were generated based on assumption.

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	4.00
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	4.00
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	NWY-17	Category	Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Lincoln Combustion Turbine Facility	Sub-basin	Lake Wylie
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	--	--	--	--	--	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022

BACKGROUND INFORMATION

Lincoln Combustion Turbine Facility is a 1,200-megawatt natural gas-fired generating facility located in Lincoln County, North Carolina. These units are used to supplement power supply during peak demand periods when electricity use is highest and rely on the burning of natural gas to rotate turbines. Water use is negligible at this facility as part of the combustion process and therefore is not included here.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
Ed Bruce provided Net water use projections. 2020-2035 values are negligible and expected 0 withdrawals 2045-2075.
Facility is included in analysis for comparison to previous forecasts

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	--	Base Year	--	Jan	--	Jul	--
2025	--	2025	--	Feb	--	Aug	--
2035	--	2035	--	Mar	--	Sep	--
2045	--	2045	--	Apr	--	Oct	--
2055	--	2055	--	May	--	Nov	--
2065	--	2065	--	Jun	--	Dec	--
2075	--	2075	--				

ID No.	SWY-3	Category	Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Catawba Nuclear Station	Sub-basin	Lake Wylie
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	36.39	36.45	36.51	35.54	29.92	36.26	36.77	36.64	36.58	36.77	35.80	36.32	35.82
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	35.31	35.32	27.07	19.52	21.86	26.82	35.38	35.48	35.54	35.57	23.49	17.17	29.02
2007	34.56	35.17	34.43	34.96	35.09	34.96	35.33	35.45	25.36	17.63	25.03	34.89	31.90
2008	34.82	33.76	35.01	35.03	18.92	23.19	35.25	35.33	35.30	35.04	34.97	34.91	32.63
2009	34.98	34.93	20.43	23.28	35.28	35.29	35.41	35.47	35.26	35.15	20.60	27.35	31.12
2010	35.08	30.13	34.76	35.05	35.28	35.12	35.53	35.39	26.65	21.80	34.20	35.04	32.86
2011	35.05	35.06	34.98	29.02	17.58	30.20	35.43	35.37	35.36	34.37	35.36	32.61	32.51
2012													33.00
2013													33.00
2014													33.00
2015													33.00
2016													33.00
2017													33.00
2018													33.00
2019													33.00
2020													33.00

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 4/27/2012

BACKGROUND INFORMATION

Water use historical data and projections for the Catawba Nuclear Station have been developed by Duke Energy for the purpose of this Water Supply Master Plan.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
--2012 - 2020: Assume values were consistent with 2020
--2020 - 2065: Assume existing water use amounts and locations continue until 2065
2075- New Nuclear site in operation. Net withdrawals captured in detail sheet SWY-4
--
Base Year is set to recent historic values because historic values were generated based on assumption.

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	33.00
2025	33.00
2035	33.00
2045	33.00
2055	33.00
2065	33.00
2075	

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	33.00
2035	33.00
2045	33.00
2055	33.00
2065	33.00
2075	

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	SWY-4	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Lake Wylie)	Sub-basin	Lake Wylie
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	--	--	--	--	--	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 1/28/2022

BACKGROUND INFORMATION

Future nuclear site at the current Catawba Nuclear facility.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes													
New nuclear facility- Catawba Nuclear Site). Duke Energy provided net withdrawals starting in 2075.													

PROJECTIONS SUMMARY

Using 2020 Data		Using Base Year		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	--	Base Year	--	Jan	1.00	Jul	1.00
2025	--	2025	-	Feb	1.00	Aug	1.00
2035	--	2035	-	Mar	1.00	Sep	1.00
2045	--	2045	-	Apr	1.00	Oct	1.00
2055	--	2055	-	May	1.00	Nov	1.00
2065	--	2065	-	Jun	1.00	Dec	1.00
2075	26.00	2075	26.00				

ID No.	SWW-3	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Lake Wateree)	Sub-basin	Lake Wateree
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 4/27/2012

BACKGROUND INFORMATION

future Water use projections for a new nuclear station on Lake Wateree have been developed by Duke Energy for the purpose of this IWRP.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
Facility is included in analysis for comparison to previous forecasts
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PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	-
2025	-
2035	6.50
2045	19.50
2055	26.00
2065	26.00
2075	26.00

Using Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	-
2025	-
2035	-
2045	-
2055	-
2065	-
2075	-

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	SWB-7	Category	Power
Entity	SCE&G	Type	Withdrawal
Facility	Dominion Energy Wateree Station	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	12.91	9.77	9.40	11.98	13.62	13.23	14.19	13.84	13.09	13.48	13.16	12.73	12.63
2013	10.22	10.48	9.51	9.97	11.82	12.92	11.50	10.98	12.65	10.62	10.26	11.57	11.04
2014	12.38	12.39	12.81	10.97	12.08	12.76	13.95	13.21	11.65	11.67	11.39	10.49	12.15
2015	12.10	11.80	8.88	11.76	13.09	12.73	13.58	13.10	10.19	8.41	9.75	11.75	11.43
2016	10.41	11.84	10.32	6.12	8.69	12.42	14.24	13.81	13.63	12.22	12.19	12.63	11.55
2017	12.78	10.24	6.11	13.91	12.87	12.87	12.95	13.24	13.27	9.59	8.44	12.50	11.66
2018	12.38	11.53	10.94	9.63	12.18	13.60	12.14	12.92	12.89	12.48	11.68	11.00	11.95
2019	10.72	10.36	6.09	4.54	10.62	10.26	11.94	11.18	8.74	2.40	2.70	6.99	8.04
2020	6.02	5.55	5.89	7.08	6.39	7.78	8.90	7.92	5.37	3.81	5.26	7.84	6.49

SC DHEC Database 2012-2020

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.00%
SIC Code	4911	Sector GSP	2.86%		
NAICS Code	22	Inflation	--		

Analysis and Projections Notes

Historical trend suggestions decrease in water use, although Sector GSP is 1.72%. Applied 0% APR to be conservative

CS	S	T

PROJECTIONS SUMMARY

Year	Flow (MGD)
2020	6.49
2025	6.49
2035	6.49
2045	6.49
2055	6.49
2065	6.49
2075	6.49

Using Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	10.77
2025	10.77
2035	10.77
2045	10.77
2055	10.77
2065	10.77
2075	10.77

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.03	Jul	1.17
Feb	0.97	Aug	1.14
Mar	0.82	Sep	1.05
Apr	0.89	Oct	0.87
May	1.06	Nov	0.87
Jun	1.12	Dec	1.01

ID No.	SWF-9	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Fishing Creek Reservoir)	Sub-basin	Fishing Creek Reservoir
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: Duke Energy; Ed Bruce/Jeff Lineberger; 11/29/2022

BACKGROUND INFORMATION

Water use projections for a new nuclear station on Fishing Creek Reservoir have been developed by Duke Energy for the purpose of this IWRP.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
Facility is included in analysis for comparison to previous forecasts
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
Base Year	--	Base Year	--	Jan	--	Jul	--
2025	--	2025	--	Feb	--	Aug	--
2035	--	2035	--	Mar	--	Sep	--
2045	--	2045	--	Apr	--	Oct	--
2055	--	2055	--	May	--	Nov	--
2065	--	2065	--	Jun	--	Dec	--
2075	--	2075	--				

ID No.	SWB-8	Category	Power - New Future Power
Entity	Duke Energy Corporation	Type	Withdrawal
Facility	Future - New (Below Wateree)	Sub-basin	Below Wateree
Contact	Jeff Lineberger	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source:

BACKGROUND INFORMATION

No future power generating facility is planned between present and 2075 below Wateree.

PROJECTIONS ASSUMPTIONS

Analysis and Projections Notes
Facility is included in analysis for comparison to previous forecasts
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PROJECTIONS SUMMARY

Using 2020 Data		Using Base Year		Monthly Coefficients			
Annual Average Flow		Annual Average Flow		Month	Coefficient	Month	Coefficient
Year	Flow (MGD)	Year	Flow (MGD)	Jan	--	Jul	--
2020	--	Base Year	--	Feb	--	Aug	--
2025	--	2025	--	Mar	--	Sep	--
2035	--	2035	--	Apr	--	Oct	--
2045	--	2045	--	May	--	Nov	--
2055	--	2055	--	Jun	--	Dec	--
2065	--	2065	--				
2075	--	2075	--				

ID No.	SRB-3	Category	Power
Entity	SCE&G	Type	Return
Facility	Dominion Energy Wateree Station	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	7.68	4.26	2.42	7.27	5.15	4.31	4.98	3.74	3.94	3.54	1.22	3.49	4.34
2018	3.56	3.58	2.17	2.32	4.26	4.70	3.85	5.04	4.53	4.87	4.96	6.41	4.19
2019	3.06	2.60	3.44	0.63	3.60	1.32	2.46	2.16	1.76	0.53	0.27	1.30	1.93
2020	1.38	0.64	0.28	0.54	0.84	1.13	0.98	1.45	1.52	0.43	0.65	0.69	0.88

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP		Applied AGR	0.00%
SIC Code	4911	Sector GSP	2.86%		
NAICS Code	22	Inflation	--		

Analysis and Projections Notes

Historical trend suggestions decrease in water use, although Sector GSP is 1.72%. Applied 0% APR to be conservative
Sector- Electrical Services
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PROJECTIONS SUMMARY

Using 2020 Data		Using Base Year		Monthly Coefficients			
Annual Average Flow		Annual Average Flow		Month	Coefficient	Month	Coefficient
Year	Flow (MGD)	Year	Flow (MGD)	Jan	1.38	Jul	1.08
2020	2.83	Base Year	2.83	Feb	0.98	Aug	1.09
2025	2.83	2025	2.83	Mar	0.73	Sep	1.04
2035	2.83	2035	2.83	Apr	0.95	Oct	0.83
2045	2.83	2045	2.83	May	1.22	Nov	0.63
2055	2.83	2055	2.83	Jun	1.01	Dec	1.05
2065	2.83	2065	2.83				
2075	2.83	2075	2.83				

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Appendix D – Public
Water/Wastewater Utility
Withdrawal and Return Detail
Sheets

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ID No.	NWJ-2	Category	Public Water/Wastewater Utilities	ID No.	NWJ-2	ID No.	NWJ-2	PWS ID:	01-56-010
Entity	City of Marion	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Marion WTP	Sub-basin	Lake James						
Contact	Ben Worley	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	0.44	0.44	0.03		0.05	0.20	0.52	2020	0.44	0.44	0.03		0.05	0.20	0.52				
2002	1.41	1.42	1.40	1.48	1.44	1.64	1.67	1.70	1.59	1.50	1.43	1.41	1.51	2025	0.45	0.45	0.04		0.05	0.20	0.53	2025	0.44	0.44	0.04		0.20	0.20	0.40				
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	0.47	0.47	0.04		0.05	0.21	0.55	2035	0.45	0.45	0.04		0.20	0.20	0.15				
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	0.49	0.49	0.04		0.05	0.22	0.57	2045	0.45	0.45	0.04		0.20	0.21	0.15				
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	0.51	0.51	0.04		0.06	0.23	0.60	2055	0.46	0.46	0.04		0.20	0.21	0.15				
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2065	0.53	0.53	0.04		0.06	0.24	0.62	2065	0.46	0.46	0.05		0.20	0.21	0.16				
2007	1.84	1.86	1.78	1.80	2.02	2.00	2.01	2.11	1.94	1.96	1.83	1.78	1.91	2075	0.56	0.56	0.04		0.06	0.25	0.65	2075	0.47	0.47	0.05		0.20	0.21	0.16				
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND	Applied AGR: 0% See Notes See Notes See Notes See Notes See Notes See Notes								See Notes See Notes See Notes See Notes See Notes See Notes											
2009	1.64	1.61	1.49	1.45	1.55	1.60	1.61	1.53	1.56	1.39	1.32	1.37	1.51	Analysis and Projections Notes										Analysis and Projections Notes									
2010	1.53	1.48	1.47	1.46	1.54	1.61	1.52	1.52	1.50	1.46	1.42	1.56	1.51	For projections, use projected population AGR of 0.42% for McDowell County.										LWSP planning projection indicates very minor growth.									
2011	1.54	1.54	1.47	1.41	1.50	1.54	1.56	1.59	1.40	1.55	1.46	1.35	1.49	Commercial category represents institutional and commercial demand										Commercial category represents institutional and commercial									
2012	1.32	1.42	1.46	1.39	1.56	1.48	1.45	1.49	1.41	1.33	1.42	1.42	1.43																				
2013	1.35	1.30	1.39	1.40	1.48	1.44	1.43	1.46	1.46	1.43	1.41	1.25	1.40	--																			
2014	1.46	1.45	1.43	1.42	1.49	1.55	1.56	1.53	1.49	1.48	1.49	1.37	1.48																				
2015	1.44	1.52	1.53	1.46	1.57	1.59	1.54	1.54	1.41	1.37	1.33	1.28	1.46	--																			
2016	1.33	1.34	1.34	1.40	1.46	1.49	1.49	1.50	1.50	1.40	1.28	1.37	1.41																				
2017	1.36	1.34	1.40	1.37	1.50	1.52	1.50	1.52	1.48	1.50	1.47	1.43	1.45	--																			
2018	1.53	1.43	1.41	1.45	1.51	1.64	1.54	1.51	1.49	1.64	1.49	1.65	1.52																				
2019	1.62	1.57	1.57	1.54	1.71	1.56	1.70	1.83	1.81	1.67	1.72	1.68	1.67	--																			
2020	1.67	1.70	1.64	1.57	1.59	1.72	1.68	1.70	1.79	1.74	1.58	1.78	1.68																				

Data Source: City of Marion; Harriett Thomas; 3/2/2012

NC DEQ - DWR Local Water Supply Plans

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	3759	118	0.445	3759	126	0.473	3686	131	0.482	3782	117	0.443
Commercial	568	391	0.222	568	424	0.241	656	459	0.301	595	744	0.4426
Industrial	38	3684	0.14	38	4421	0.168	24	7417	0.178	24	1446	0.0347
Institutional	101	1139	0.115	101	1139	0.115	89	1236	0.11			0
Wholesale		-			-			-	0.0681		-	0.0481
Other		-			-			-	0.375		-	0.2
Unaccounted		-			-			-	0.1509		-	0.5176

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	1.69
2025	1.72
2035	1.79
2045	1.87
2055	1.95
2065	2.03
2075	2.12

Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	1.53
2025	1.57
2035	1.64
2045	1.72
2055	1.80
2065	1.88
2075	1.96

Monthly Coefficients	
Month	Coefficient
Jan	0.99
Feb	0.98
Mar	0.97
Apr	0.96
May	1.03
Jun	1.04
Jul	1.03
Aug	1.05
Sep	1.02
Oct	1.00
Nov	0.97
Dec	0.97

Annual Average Flow	
Year	Flow (MGD)
2020	1.69
2025	1.72
2035	1.50
2045	1.51
2055	1.52
2065	1.53
2075	1.55

Monthly Coefficients	
Month	Coefficient
Jan	0.98
Feb	0.98
Mar	0.97
Apr	0.96
May	1.02
Jun	1.04
Jul	1.04
Aug	1.05
Sep	1.02
Oct	1.00
Nov	0.96
Dec	0.97

Historical Data Summary Notes
--Includes NWJ-3 and NWJ-4
City of Marion wholesales (small volumes) water to McDowell County.
Institutional metered connections are combined with commercial metered connections.
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ID No.	NWJ-3	Category	Public Water/Wastewater Utilities	ID No.	NWJ-3	ID No.	NWJ-3	PWS ID:	01-56-010
Entity	City of Marion	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Marion WTP (see NWJ-2 for proj.)	Sub-basin	Lake James						
Contact	Ben Worley	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NWJ-4	Category	Public Water/Wastewater Utilities	ID No.	NWJ-4	ID No.	NWJ-4	PWS ID:	01-56-010
Entity	City of Marion	Type	Withdrawal	(continued from previous page)		(continued from previous page)			
Facility	Marion WTP (see NWJ-2 for proj.)	Sub-basin	Lake James						
Contact	Ben Worley	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NWR-1	Category	Public Water/Wastewater Utilities	ID No.	NWR-1	ID No.	NWR-1	PWS ID:	01-14-030
Entity	Town of Granite Falls	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Granite Falls WTP	Sub-basin	Lake Rhodhiss						
Contact	J.Church; J. Munday	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>			<u>LOCAL WATER SUPPLY PLAN</u>		

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	0.27	0.08	0.01	0.02	0.45	0.07	0.41	2020	0.27	0.08	0.01	0.02	0.45	0.07	0.41				
2002	1.11	1.07	1.09	1.24	1.46	1.65	1.57	1.53	1.29	1.18	1.29	1.20	1.31	2025	0.28	0.08	0.01	0.02	0.46	0.07	0.43	2025	0.27	0.08	0.01	0.02	0.67	0.08	0.35				
2003	1.17	1.18	1.21	1.40	1.47	1.53	1.48	1.46	1.21	1.19	1.05	1.01	1.28	2035	0.29	0.09	0.01	0.02	0.49	0.08	0.45	2035	0.27	0.08	0.01	0.03	0.67	0.10	0.21				
2004	1.14	1.17	1.13	1.18	1.25	1.22	1.23	1.24	1.17	1.19	1.07	1.07	1.17	2045	0.31	0.09	0.01	0.02	0.52	0.08	0.48	2045	0.27	0.08	0.01	0.03	0.67	0.09	0.21				
2005	1.08	1.09	1.06	1.09	1.12	1.10	1.12	1.25	1.29	1.17	1.21	1.38	1.16	2055	0.33	0.10	0.01	0.03	0.55	0.09	0.51	2055	0.26	0.07	0.01	0.03	0.67	0.09	0.21				
2006	1.09	1.09	1.25	1.25	1.34	1.44	1.31	1.27	1.23	1.23	1.14	1.14	1.23	2065	0.35	0.10	0.01	0.03	0.58	0.09	0.54	2065	0.26	0.07	0.01	0.03	0.67	0.09	0.21				
2007	1.15	1.17	1.14	1.19	1.56	1.57	1.49	1.68	1.31	1.22	1.13	1.10	1.31	2075	0.37	0.11	0.01	0.03	0.62	0.10	0.57	2075	0.26	0.07	0.01	0.02	0.67	0.09	0.21				
2008	1.21	1.14	1.12	1.19	1.29	1.45	1.25	1.18	1.20	1.13	1.12	1.01	1.19	Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes See Notes								See Notes See Notes See Notes See Notes See Notes See Notes See Notes											
2009	1.03	1.02	1.00	1.04	1.07	1.14	1.12	1.18	1.08	1.05	1.09	1.05	1.07	Analysis and Projections Notes										Analysis and Projections Notes									
2010	1.16	1.00	1.01	1.08	1.14	1.17	1.22	1.14	1.20	1.17	1.06	1.11	1.12																				
2011	0.99	1.00	1.03	1.01	1.33	1.31	1.22	1.25	1.11	1.26	1.20	1.12	1.15	Very little industrial growth is expected by the Town. Per the Town, residential growth through increase in demand from current annexations WTP with a permit of 2.5 MGD, and a WWTP permitted for 0.900 MGD										LWSP forecasted wholesale as 0.67 MGD Their projections based on decrease in population									
2012	1.17	1.10	1.13	1.26	1.28	1.29	1.25	1.22	1.27	1.31	1.25	1.18	1.23																				
2013	1.21	1.12	1.10	1.06	1.12	1.08	1.03	1.14	1.29	1.39	1.21	1.11	1.16																				
2014	1.04	1.00	1.03	0.87	1.02	0.99	1.04	1.21	0.92	0.97	1.25	1.07	1.05																				
2015	1.07	1.05	0.99	1.00	1.23	1.24	1.25	1.23	1.09	1.14	1.06	1.05	1.05																				
2016	1.09	1.07	1.09	1.25	1.16	1.27	1.15	1.11	1.12	1.26	1.18	0.94	1.14																				
2017	1.06	1.17	1.05	1.00	1.02	1.13	1.22	1.34	1.31	1.22	1.28	1.11	1.16																				
2018	1.20	1.10	1.10	1.20	1.30	1.40	1.40	1.40	1.40	1.40	1.20	1.30	1.30																				
2019	1.18	1.21	1.25	1.25	1.48	1.43	1.50	1.44	1.37	1.32	1.28	1.20	1.33	AGR of 0.59 used for residential categories per Caldwell County projected AGR.																			
2020	1.21	1.21	1.26	1.22	1.31	1.42	1.57	1.33	1.32	1.33	1.24	1.28	1.31																				

Data Source: Granite Falls; Shuford Wise; 2/8/2012

DMAG submission 2012-2020

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	2267	119	0.269	2271	118	0.267	2305	116	0.268	2303	116	0.27
Commercial	269	283	0.076	274	339	0.093	282	362	0.102	281	285	0.08
Industrial	1	14000	0.014	1	14000	0.014	1	15000	0.015	1	6000	0.01
Institutional	14	2000	0.028	14	1800	0.0252	15	1427	0.0214	19	1121	0.02
Wholesale												0.45
Other		-			-			-			-	0.07
Unaccounted		-			-			-			-	0.41

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	1.31
2025	1.35
2035	1.43
2045	1.52
2055	1.61
2065	1.71
2075	1.81

Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	1.19
2025	1.23
2035	1.31
2045	1.40
2055	1.49
2065	1.58
2075	1.69

Monthly Coefficients	
Month	Coefficient
Jan	0.94
Feb	0.92
Mar	0.93
Apr	0.96
May	1.05
Jun	1.09
Jul	1.07
Aug	1.08
Sep	1.02
Oct	1.02
Nov	0.98
Dec	0.94

Annual Average Flow	
Year	Flow (MGD)
2020	1.31
2025	1.48
2035	1.36
2045	1.36
2055	1.36
2065	1.35
2075	1.35

Monthly Coefficients	
Month	Coefficient
Jan	0.94
Feb	0.92
Mar	0.93
Apr	0.96
May	1.05
Jun	1.09
Jul	1.07
Aug	1.08
Sep	1.02
Oct	1.02
Nov	0.98
Dec	0.94

Historical Data Summary Notes
WTP capacity is currently 2.5 MGD
Granite Falls wholesales to Caldwell County, Rhodhiss and Hickory.
Population base has grown in residential areas but has really flat-lined in recent years.
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ID No.	NWR-2	Category	Public Water/Wastewater Utilities	ID No.	NWR-2	ID No.	NWR-2	PWS ID:	01-14-010
Entity	City of Lenoir	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Lenoir WTP (Lake Rhodhiss WTP)		Sub-basin	Lake Rhodhiss					
Contact	Radford L. Thomas	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>			<u>LOCAL WATER SUPPLY PLAN</u>		

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
														Year	Customer Type							Year	Customer Type										
Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted																				
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	1.42	0.37	1.29	0.34	2.18	0.67	1.14	2020	1.42	0.37	1.29	0.34	2.18	0.67	1.14				
2002	6.10	6.08	6.03	6.30	6.63	7.21	7.30	7.22	6.59	6.53	6.05	5.88	6.49	2025	1.46	0.38	1.33	0.35	2.25	0.69	1.17	2025	1.44	0.38	1.40	0.34	2.73	0.67	1.13				
2003	6.35	6.15	6.03	6.05	6.22	6.35	6.27	6.64	6.39	6.29	5.85	5.75	6.20	2035	1.55	0.40	1.41	0.37	2.38	0.74	1.24	2035	1.48	0.40	1.64	0.34	1.80	0.68	1.13				
2004	6.10	6.06	5.84	5.97	6.39	6.16	6.40	6.30	6.10	6.02	5.98	6.05	6.12	2045	1.64	0.43	1.49	0.39	2.53	0.78	1.32	2045	1.53	0.40	2.02	0.34	1.80	0.68	1.14				
2005	6.06	5.99	5.89	6.09	6.47	6.50	6.29	6.49	6.41	6.13	6.15	6.18	6.22	2055	1.74	0.45	1.58	0.42	2.68	0.83	1.40	2055	1.59	0.41	2.07	0.35	1.80	0.68	1.15				
2006	6.00	5.89	6.13	6.29	6.54	6.86	6.54	7.08	6.69	6.44	6.37	5.91	6.40	2065	1.85	0.48	1.68	0.44	2.85	0.88	1.48	2065	1.65	0.41	2.12	0.35	1.80	0.68	1.16				
2007	5.84	5.87	6.39	6.40	6.81	6.74	6.42	6.81	6.20	5.84	5.57	5.52	6.20	2075	1.96	0.51	1.78	0.47	3.02	0.93	1.57	2075	1.71	0.41	2.17	0.35	1.80	0.69	1.17				
2008	5.76	5.62	5.44	5.73	6.03	6.64	6.22	6.21	5.93	5.68	5.60	5.55	5.87	Applied AGR:	0.59%	0.59%	0.59%	0.59%	0.59%	0.59%	0.59%	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes				
2009	5.98	5.75	5.50	5.67	6.07	6.19	6.18	5.66	5.80	5.79	5.66	5.86	5.84	Analysis and Projections Notes										Analysis and Projections Notes									
2010	6.12	5.91	5.40	5.41	5.94	6.60	6.62	6.27	6.41	6.29	6.13	6.58	6.14	Previous McGill study (2008 for new intake) projected 2011 need at 9.3 mgd, but City is still averaging 6 mgd average daily use.										2020 LWSP indicate drop in wholesale from 2025 to 2035									
2011	6.31	6.14	6.10	6.24	6.82	7.24	7.48	7.98	7.08	5.95	5.82	5.63	6.57	2020 Unaccounted category includes LWSP report and difference between LWSP and DMAG submission																			
2012	5.89	5.55	5.59	5.57	5.84	6.16	6.01	5.93	5.84	5.51	5.51	5.40	5.73	Values are aligned with DMAG submission																			
2013	5.52	5.51	5.41	5.72	5.87	6.02	6.12	6.31	6.40	6.17	6.10	6.08	5.93																				
2014	6.88	6.52	6.02	6.29	6.60	6.62	6.50	6.30	6.32	6.26	5.97	5.99	6.36																				
2015	6.29	6.46	6.24	6.14	6.74	6.60	6.63	6.51	6.43	5.94	5.75	5.62	6.28																				
2016	5.71	5.78	5.66	5.79	5.95	6.46	6.27	6.39	6.41	6.10	5.98	5.84	6.03																				
2017	5.88	5.72	5.69	5.98	6.22	6.49	6.59	6.41	6.34	6.20	5.88	6.07	6.14	AGR of 0.59 used for residential categories per Caldwell County projected AGR.																			
2018	6.40	5.80	5.70	5.90	6.40	6.90	6.60	6.60	6.80	6.20	6.20	5.90	6.29																				
2019	6.07	6.06	5.96	6.17	6.50	6.67	7.39	7.20	7.42	7.06	6.74	6.79	6.67																				
2020	6.86	7.07	7.08	7.39	7.61	7.89	8.07	7.86	7.57	7.56	6.86	7.07	7.41																				

Data Source: City of Lenoir; Mark Townsend; 2/8/2012

DMAG submission 2012-2020

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	8823	193	1.7	8848	141	1.244	8828	147	1.2977	8901	159	1.4186
Commercial	726	1280	0.929	689	495	0.341	710	441	0.3128	739	501	0.3701
Industrial	49	2102	0.103	60	17383	1.043	61	18808	1.1473	60	21452	1.2871
Institutional	186	1204	0.224	204	1627	0.332	221	1525	0.3371	230	1472	0.3386
Wholesale												2.1823
Other		-			-			-			-	0.6741
Unaccounted		-			-			-			-	0.9692

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ-DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	7.41
2025	7.63
2035	8.09
2045	8.58
2055	9.10
2065	9.66
2075	10.24

Using Base Year Annual Average Flow	
Year	Flow
Base Year	6.26
2025	6.48
2035	6.94
2045	7.43
2055	7.95
2065	8.51
2075	9.09

Monthly Coefficients	
Month	Coefficient
Jan	0.98
Feb	0.96
Mar	0.94
Apr	0.97
May	1.02
Jun	1.06
Jul	1.06
Aug	1.06
Sep	1.04
Oct	0.99
Nov	0.96
Dec	0.96

Annual Average Flow	
Year	Flow (MGD)
2020	7.41
2025	8.09
2035	7.46
2045	7.90
2055	8.03
2065	8.16
2075	8.29

Monthly Coefficients	
Month	Coefficient
Jan	0.98
Feb	0.96
Mar	0.94
Apr	0.97
May	1.02
Jun	1.06
Jul	1.06
Aug	1.06
Sep	1.04
Oct	0.99
Nov	0.96
Dec	0.96

Historical Data Summary Notes
Lenoir wholesales water to Caldwell County, Baton Water, Joyceton Water and Sawmills.
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DMAG submission differs slightly from report total in LWSP 0.2 MGD
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Changing meters to AMI has led to leak detection
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ID No.	NWH-2	Category	Public Water/Wastewater Utilities	ID No.	NWH-2	ID No.	NWH-2	PWS ID:	01-18-025
Entity	Town of Long View	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Long View WTP	Sub-basin	Lake Hickory						
Contact	Chris Eckard	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.08	1.08	0.99	1.10	1.22	1.15	1.04	1.11	0.98	0.98	0.95	0.84	1.04
2003	0.97	0.97	0.88	0.99	1.11	1.04	0.93	1.00	0.87	0.87	0.84	0.73	0.93
2004	0.82	0.81	0.84	0.82	0.84	0.88	0.85	0.91	0.87	0.93	0.96	0.92	0.87
2005	0.85	0.80	0.78	0.78	0.80	0.78	0.75	0.81	0.88	0.78	0.79	0.82	0.80
2006	0.89	0.92	0.89	0.80	0.91	0.89	0.82	0.81	0.79	0.79	0.71	0.88	0.84
2007	0.64	0.63	0.67	0.63	0.65	0.72	0.82	0.67	0.77	0.71	0.64	0.67	0.69
2008	0.75	0.72	--	--	--	--	--	--	1.26	1.22	0.83	0.80	0.46
2009	0.80	0.81	0.79	0.78	0.79	0.83	0.82	0.78	0.80	0.72	0.78	0.75	0.79
2010	0.83	0.78	0.78	0.77	0.79	0.83	0.76	0.74	0.78	0.78	0.74	0.79	0.78
2011	0.79	0.77	0.77	0.76	0.78	0.41	0.60	0.92	0.89	0.87	0.89	0.89	0.78
2012	1.01	1.02	0.90	0.87	0.89	0.92	0.87	0.85	0.83	0.84	0.84	0.81	0.89
2013	0.83	0.80	0.80	0.81	0.81	0.83	0.81	0.85	0.80	0.83	0.81	0.79	0.81
2014	0.76	0.84	0.77	0.73	0.70	0.74	0.82	0.73	0.76	0.86	0.81	0.61	0.76
2015	0.70	0.80	0.76	0.73	0.70	0.82	0.74	0.72	0.72	0.80	0.79	0.63	0.74
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: Town of Long View; Rani Holland; 2/10/2012
NC DEQ DWR LWSP 2012-2020

Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020															
2025															
2035															
2045															
2055															
2065															
2075															
Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes								See Notes See Notes See Notes See Notes See Notes See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Town receives all water from Hickory. Recommended to exclude forecast as withdrawal amount is forecasted in the Hickory detail worksheet.								2020 LWSP has wholesale consistent at 0.029							

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	2644	289	0.765	2649	210	0.557	2655	148	0.392	2558	179	0.46
Commercial	195	2615	0.51	196	1531	0.3	196	908	0.178	70	227	0.02
Industrial												
Institutional												
Wholesale												0.03
Other		-			-			-			-	0.10
Unaccounted		-			-			-			-	0.05

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.05
Feb	1.05
Mar	0.95
Apr	0.95
May	0.98
Jun	0.97
Jul	0.95
Aug	0.97
Sep	1.07
Oct	1.07
Nov	1.02
Dec	0.98

Annual Average Flow	
Year	Flow (MGD)
0	--
0	--
0	--
0	--
0	--
0	--

Monthly Coefficients	
Month	Coefficient
Jan	1.05
Feb	1.05
Mar	0.95
Apr	0.95
May	0.98
Jun	0.97
Jul	0.95
Aug	0.97
Sep	1.07
Oct	1.07
Nov	1.02
Dec	0.98

Historical Data Summary Notes
No withdrawals from Catawba starting in 2015
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Purchases water from Hickory
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ID No.	NWR-3	Category	Public Water/Wastewater Utilities	ID No.	NWR-3	ID No.	NWR-3	PWS ID:	01-12-015
Entity	City of Morganton	Type	Withdrawal	(continued from previous page)					(continued from previous page)
Facility	Catawba River WTP	Sub-basin	Lake Rhodhiss						
Contact	Brad Boris	IBT?	No						

HISTORICAL DATA SUMMARY														PROJECTIONS ANALYSIS														LOCAL WATER SUPPLY PLAN							
Flow Rate Data (MGD)														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)													
														Year	Customer Type						Year	Customer Type													
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	1.33	1.55	2.60	0.21	1.18	0.14	0.19	2020	1.33	1.55	2.60	0.21	1.18	0.14	0.19						
2002	7.90	7.70	8.00	8.70	9.10	9.90	10.00	9.50	8.20	7.10	6.70	6.90	8.31	2025	1.36	1.63	3.38	0.22	1.21	0.14	0.19	2025	1.38	1.68	3.02	0.23	2.51	0.15	0.30						
2003	7.80	7.10	7.20	7.60	7.50	8.10	7.80	8.30	7.90	7.60	7.10	7.00	7.59	2035	1.41	1.80	3.74	0.24	1.26	0.15	0.20	2035	1.47	1.95	3.85	0.26	2.51	0.17	0.51						
2004	6.89	6.87	6.65	7.55	7.48	7.52	7.98	8.43	7.61	7.36	7.12	6.99	7.37	2045	1.47	1.99	4.13	0.27	1.31	0.16	0.21	2045	1.55	2.05	3.95	0.30	2.51	0.19	0.54						
2005	7.13	7.16	7.22	7.30	7.68	7.90	7.68	8.95	8.75	8.37	8.09	7.69	7.83	2055	1.54	2.20	4.56	0.30	1.37	0.16	0.22	2055	1.65	2.15	4.05	0.34	2.51	0.21	0.57						
2006	7.90	7.80	7.90	8.00	8.60	9.30	9.10	9.30	9.80	8.40	7.90	7.80	8.49	2065	1.60	2.43	5.04	0.33	1.42	0.17	0.23	2065	1.74	2.25	4.15	0.39	2.51	0.23	0.59						
2007	8.39	8.32	8.39	8.67	10.19	10.07	9.94	10.74	9.70	8.61	7.70	7.58	9.03	2075	1.67	2.68	5.57	0.36	1.48	0.18	0.24	2075	1.84	2.35	4.25	0.44	2.51	0.25	0.62						
2008	8.01	7.60	7.57	7.89	8.48	10.24	9.36	9.07	8.70	8.28	7.58	7.76	8.38	Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes See Notes																					
2009	7.93	7.14	7.55	7.77	8.10	8.17	8.35	8.52	8.03	7.61	7.53	7.29	7.84	Analysis and Projections Notes Per City, population growth in Morganton is a direct reflection of job growth, as jobs in the the City are a key to the population base. 2025 Industrial growth adjusted to reflect new industry taking over bottling plant that became vacant in 2019 (per City's request). Added the difference between 2020 and 2018 IND demand AGR of 0.41 used for residential category per Burke County projected AGR. AGR of 1.0 used for commercial, industrial, institutional categories to account for growth																					
2010	7.71	7.39	7.45	7.80	8.29	9.30	9.19	9.00	9.03	8.00	7.53	7.55	8.19																						
2011	8.00	7.79	7.84	7.93	8.39	9.37	9.35	9.68	8.60	8.16	7.63	7.61	8.37																						
2012	7.84	7.00	7.90	8.23	8.94	11.10	9.45	9.87	8.70	7.84	7.50	7.06	8.45																						
2013	7.83	8.00	7.08	7.66	8.11	8.26	8.76	10.61	9.17	9.27	7.92	7.59	8.33																						
2014	9.09	8.26	7.74	7.84	8.67	9.11	8.77	9.08	9.35	9.09	8.15	7.67	8.55																						
2015	8.09	8.17	8.01	8.08	9.84	9.44	9.08	9.40	9.01	8.59	7.88	8.07	8.61																						
2016	8.09	7.91	7.75	8.08	8.39	9.98	9.28	8.85	8.87	9.11	8.59	9.25	8.68																						
2017	10.45	10.24	9.82	7.30	7.84	8.52	8.51	8.82	8.36	7.96	7.42	6.97	8.51																						
2018	8.10	7.80	7.40	7.60	8.40	9.30	8.70	8.90	9.30	8.50	8.50	7.00	8.28																						
2019	7.06	6.90	6.92	7.23	7.88	8.08	8.34	8.06	8.46	7.63	7.18	7.11	7.57																						
2020	7.20	7.07	6.86	6.34	6.70	7.79	7.74	7.72	7.62	7.13	6.75	6.95	7.16																						

Data Source: City of Morganton;Don Dandford; 2/10/2012.

DMAG submission 2012-2020

Customer Data													Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients		Annual Average Flow		Monthly Coefficients	
Customer Type	2017			2018			2019			2020			Year	Flow (MGD)	Year	Flow	Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III										
Residential	8651	164	1.42	8655	143	1.24	8727	157	1.37	8804	151	1.33	2020	7.20	Base Year	8.30	Jan	0.97	2020	7.20	Jan	0.97
Commercial	1321	1,282	1.69	1313	1,092	1.43	1351	1,103	1.49	1362	1,138	1.55	2025	8.13	2025	9.23	Feb	0.94	2025	9.26	Feb	0.94
Industrial	53	#####	3.40	54	#####	3.22	54	51,481	2.78	53	49,057	2.60	2035	8.80	2035	9.90	Mar	0.93	2035	10.72	Mar	0.93
Institutional	156	2,776	0.43	158	2,405	0.38	159	2,013	0.32	158	1,329	0.21	2045	9.53	2045	10.63	Apr	0.95	2045	11.09	Apr	0.95
Wholesale												1.18	2055	10.33	2055	11.43	May	1.02	2055	11.48	May	1.02
Other												0.14	2065	11.21	2065	12.31	Jun	1.10	2065	11.87	Jun	1.10
Unaccounted												0.19	2075	12.17	2075	13.26	Jul	1.08	2075	12.25	Jul	1.08
Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)																						
Data Source: NC DEQ - DWR Local Water Supply Plans																						

Historical Data Summary Notes
City of Morganton wholesales water to Burke County, Brentwood Water, Drexel
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Bottle water plant left 3 years ago and was idel until Sept 2021. Data from 2018 may be more representative
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DMAG submission for 2020 is 0.04 MGD less than LWSP 2020 totals
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ID No.	NWR-4	Category	Public Water/Wastewater Utilities	ID No.	NWR-4	ID No.	NWR-4	PWS ID:	01-12-010
Entity	Town of Valdese	Type	Withdrawal	(continued from previous page)					(continued from previous page)
Facility	Valdese WTP	Sub-basin	Lake Rhodhiss						
Contact	Greg Padgett	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	5.28	5.22	5.27	5.77	6.27	6.23	5.65	5.97	5.55	5.04	4.63	4.47	5.45
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	5.43	5.32	5.75	5.80	5.63	5.80	5.16	5.66	5.28	4.87	5.27	4.44	5.37
2005	4.77	4.76	5.09	4.35	4.46	4.91	4.16	4.58	3.93	3.96	3.79	3.40	4.34
2006	5.13	6.24	5.02	5.11	4.94	5.24	4.50	5.60	5.50	5.37	4.88	4.54	5.16
2007	3.84	4.07	3.89	3.99	4.57	4.43	4.23	4.80	4.31	4.30	3.85	3.35	4.14
2008	3.92	3.60	3.65	3.66	3.81	4.04	3.73	3.75	3.45	3.30	2.94	2.60	3.54
2009	2.97	2.97	2.92	3.06	3.09	3.36	3.37	3.15	3.36	3.15	3.04	2.98	3.12
2010	3.19	3.34	3.44	3.49	3.35	3.72	3.36	3.51	3.59	3.25	3.04	2.95	3.35
2011	3.13	3.20	3.11	2.94	3.18	3.49	3.06	3.42	3.14	3.16	2.93	2.60	3.11
2012	2.90	2.91	2.90	3.01	3.14	3.39	3.28	3.54	3.44	3.34	3.08	2.88	3.15
2013	3.15	3.19	3.20	3.32	3.41	3.56	3.51	3.51	3.46	3.60	2.77	2.58	3.26
2014	3.07	2.78	2.57	2.73	3.04	3.25	3.08	2.92	2.93	2.81	2.64	2.54	2.90
2015	2.71	2.66	2.62	2.74	2.89	3.03	3.24	3.33	3.02	2.84	2.72	2.54	2.86
2016	2.68	2.80	2.83	2.82	2.96	3.25	3.00	3.45	3.40	3.05	3.19	2.85	3.00
2017	2.80	2.74	2.76	2.71	2.88	3.22	2.92	3.30	2.99	2.76	2.55	2.41	2.84
2018	2.85	2.70	2.55	2.65	2.77	2.97	2.99	3.08	2.87	2.91	2.31	2.44	2.76
2019	2.71	2.47	2.44	2.44	2.96	3.04	3.05	2.89	3.24	3.03	2.67	2.39	2.78
2020	2.45	2.54	2.55	2.26	2.40	2.36	2.95	2.85	2.91	3.04	2.80	2.81	2.66

Data Source: Town of Valdese; David Cook; 2/10/2012

DMAG submission 2012-2020

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	5021	122	0.611	5040	133	0.672	4850	124	0.6	4949	196	0.97
Commercial	163	638	0.104	171	865	0.148	323	619	0.2	341	381	0.13
Industrial	27	38778	1.047	27	36667	0.99	27	37037	1	28	25000	0.70
Institutional	15	2533	0.038	14	2929	0.041	0		0	0	#DIV/0!	0.04
Wholesale												0.35
Other		-			-			-			-	0.15
Unaccounted		-			-			-			-	0.34

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.68
2025	2.72
2035	2.80
2045	2.89
2055	2.98
2065	3.08
2075	3.18

Using Base Year Annual Average Flow	
Year	Flow
Base Year	3.24
2025	3.28
2035	3.37
2045	3.46
2055	3.55
2065	3.64
2075	3.74

Monthly Coefficients	
Month	Coefficient
Jan	0.99
Feb	1.00
Mar	0.98
Apr	0.99
May	1.03
Jun	1.09
Jul	1.02
Aug	1.09
Sep	1.04
Oct	1.00
Nov	0.93
Dec	0.86

Annual Average Flow	
Year	Flow (MGD)
2020	2.68
2025	3.52
2035	3.56
2045	3.60
2055	3.65
2065	3.69
2075	3.73

Monthly Coefficients	
Month	Coefficient
Jan	0.99
Feb	1.00
Mar	0.98
Apr	0.99
May	1.03
Jun	1.09
Jul	1.02
Aug	1.09
Sep	1.04
Oct	1.00
Nov	0.93
Dec	0.86

Historical Data Summary Notes

Town of Valdese wholesales water to Burke County, Icard Water Corp. and the Town of Rutherford College.
2020 customer data update based on conversations with Greg Padgett. Values differ from 2020 DMAG submission
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ID No.	NWH-1	Category	Public Water/Wastewater Utilities	ID No.	NWH-1	ID No.	NWH-1	PWS ID:	01-18-010
Entity	City of Hickory	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Hickory WTP	Sub-basin	Lake Hickory						
Contact	Shawn Pennell	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
	2002	11.52	10.35	10.15	11.62	12.89	14.94	14.64	14.64	12.79	11.62	11.32	10.93	12.30	2020	2.69	2.84	1.29	0.73	4.22	0.27	0.17	2020	3.03	5.48	--	--	4.75	0.31	0.19			
	2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	3.04	3.21	2.31	0.83	4.77	0.31	0.19	2025	3.08	5.61	--	--	12.23	0.31	0.18			
	2004	12.63	12.63	12.60	13.13	14.33	14.61	14.74	15.67	14.74	13.99	13.52	13.66	13.86	2035	3.89	4.11	2.95	1.06	6.10	0.40	0.24	2035	3.17	5.84	--	--	12.23	0.32	0.16			
	2005	13.90	14.00	13.38	13.22	13.87	14.36	14.50	15.55	15.79	14.29	12.42	11.47	13.89	2045	4.17	4.40	3.17	1.14	6.54	0.43	0.26	2045	3.26	6.01	--	--	12.23	0.33	0.17			
	2006	11.28	11.09	11.73	12.34	13.44	15.19	14.45	14.00	12.80	12.39	11.22	11.13	12.60	2055	4.47	4.72	3.39	1.22	7.01	0.46	0.28	2055	3.36	6.19	--	--	12.23	0.34	0.17			
	2007	11.23	11.49	11.72	12.62	15.20	15.77	15.39	17.06	13.97	12.22	11.59	10.86	13.27	2065	4.79	5.06	3.64	1.31	7.52	0.49	0.30	2065	3.46	6.38	--	--	12.23	0.35	0.18			
	2008	11.40	11.25	11.59	12.32	13.22	15.15	13.99	14.32	12.86	12.60	12.20	11.40	12.69	2075	5.14	5.42	3.90	1.40	8.06	0.52	0.32	2075	3.56	6.56	--	--	12.23	0.36	0.18			
	2009	11.25	11.08	11.06	11.56	12.26	13.02	13.73	13.59	13.07	12.21	11.53	10.87	12.11	Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes See Notes																		
	2010	11.51	11.43	11.06	12.26	11.71	13.22	13.83	13.66	13.71	15.25	13.25	12.79	12.81	Analysis and Projections Notes												Analysis and Projections Notes						
	2011	12.95	12.61	12.09	12.48	13.62	15.23	15.05	15.74	15.63	14.28	13.67	13.54	13.91	2020 LWSP demand and DMAG values differ by 1.52 MGD. Projection leverage DMAG data and												City of Hickory water billing treats commercial, industrial and institutional customers as						
	2012	12.38	11.97	11.62	11.95	10.94	11.92	11.65	12.46	11.79	11.17	10.31	9.41	11.46	Customer Type flowrates are calculated based on LWSP category percent use. Commercial												Commercial category in LWSP. This process was completed						
	2013	9.73	9.76	9.61	10.12	10.42	10.92	10.42	10.43	10.81	10.47	9.45	8.86	10.08	industrial and institutional based on the reported 2020 commercial use value multiplied by the																		
	2014	9.88	9.42	9.43	10.16	11.47	11.86	12.09	11.27	11.21	10.60	9.71	9.31	10.54	basin-wide historical average ratios of categorical use in each of these three categories.												2020 LWSP forecasted large wholesale increase						
	2015	9.64	10.19	9.83	9.75	12.41	12.16	12.46	12.28	11.71	10.84	10.04	9.65	10.92																			
	2016	9.87	9.93	10.25	11.11	11.38	13.72	13.39	12.83	13.43	12.65	12.19	10.54	11.78	One new large industry is anticipated; Gusmer .850 MGD. Added in 2025																		
	2017	10.79	10.78	10.65	11.84	12.14	12.77	12.91	12.20	12.42	11.87	10.84	10.21	11.62	No large scale annexations or new large residential neighborhoods are anticipated.																		
	2018	11.50	10.20	10.10	10.30	12.20	13.20	13.60	12.20	12.20	11.60	10.30	10.00	11.46	Growth has been less than 1% the past several years and water conservation has increased.																		
	2019	10.37	10.32	10.33	10.18	12.80	12.77	12.78	12.98	13.99	12.74	10.60	10.19	11.67	Per discussion with City, applied staggered AGR to reflect near-term growth. AGR of 2.5 applied (2020-2035)																		
	2020	10.59	10.55	10.37	11.40	13.80	14.57	14.20	14.04	13.05	12.70	11.42	10.09	12.20	AGR of 0.70% used for all categories per Catawba County projected AGR (2035-2075)																		

Data Source: City of Hickory; Kevin Greer; 2/8/2012

DMAG submission 2012-2019

City of Hickory; Andrew Foy; 2/21/2022

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	23693	129	3.059	24310	125	3.028	23619	133	3.148	20258	150	3.03
Commercial	3296	807	2.659	3323	1171	3.891	2290	1709	3.914	3366	1627	5.48
Industrial		-	0		-	0		-	0		-	-
Institutional		-	0		-	0		-	0		-	-
Wholesale												4.75
Other		-			-			-			-	0.31
Unaccounted		-			-			-			-	0.19

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: City of Hickory; Kevin Greer; 2/8/2012

NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes	
City of Hickory water billing treats commercial, industrial and institutional customers as "commercial" category.	
City of Hickory wholesales water to Alexander County, Town of Catawba, Conover, Icard Township Water Corp, Longview, Maiden,Newton, and Southeast Catawba County.	
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City of Hickory notes that DMAG values may be more accurate than LWSP values, hence discrepancy in historical values	
LWSP 13.76 MGD, DMAG 12.24	
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	12.20
2025	14.66
2035	18.76
2045	20.11
2055	21.55
2065	23.10
2075	24.76

Using Base Year Annual Average Flow	
Year	Flow
Base Year	11.94
2025	14.39
2035	18.50
2045	19.85
2055	21.29
2065	22.84
2075	24.50

Monthly Coefficients	
Month	Coefficient
Jan	0.92
Feb	0.91
Mar	0.90
Apr	0.95
May	1.04
Jun	1.12
Jul	1.11
Aug	1.12
Sep	1.08
Oct	1.02
Nov	0.94
Dec	0.89

Annual Average Flow	
Year	Flow (MGD)
2020	13.76
2025	21.40
2035	21.72
2045	22.00
2055	22.29
2065	22.59
2075	22.89

Monthly Coefficients	
Month	Coefficient
Jan	0.92
Feb	0.91
Mar	0.90
Apr	0.95
May	1.04
Jun	1.12
Jul	1.11
Aug	1.12
Sep	1.08
Oct	1.02
Nov	0.94
Dec	0.89

ID No.	NWL-1	Category	Public Water/Wastewater Utilities	ID No.	NWL-1	ID No.	NWL-1	PWS ID:	01-49-010
Entity	City of Statesville	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Statesville WTP	Sub-basin	Lookout Shoals Lake						
Contact	H.Hull; A. Smith	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	4.25	4.21	4.29	4.84	5.06	5.56	4.47	3.11	2.61	2.93	2.91	2.90	3.92
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	3.44	3.41	3.63	3.66	4.20	4.10	4.19	4.29	3.70	3.83	3.52	3.28	3.77
2007	3.48	3.65	3.90	3.71	4.67	4.62	4.19	4.76	3.57	2.81	2.59	2.61	3.71
2008	2.25	2.83	2.41	2.68	2.90	3.44	3.12	2.91	2.75	2.78	2.74	2.59	2.78
2009	3.04	2.98	3.19	3.07	3.09	3.27	3.62	3.37	3.25	3.04	2.96	2.85	3.15
2010	3.05	3.15	3.00	3.27	3.35	3.54	3.67	3.60	3.73	3.08	2.81	2.49	3.23
2011	2.34	2.95	2.87	2.98	3.07	3.57	3.32	3.47	3.24	3.08	2.92	2.70	3.04
2012	2.85	2.85	2.94	3.01	3.22	3.27	3.43	3.33	3.23	3.12	1.64	2.99	2.99
2013	3.20	3.13	3.13	3.19	3.28	3.33	3.28	3.07	3.19	3.29	2.95	2.89	3.16
2014	3.15	3.00	2.90	2.91	3.33	3.54	3.49	3.25	3.24	3.14	2.91	2.84	3.14
2015	3.02	3.06	2.98	3.14	3.32	3.51	3.26	3.29	3.24	3.05	2.74	2.92	3.13
2016	2.99	2.82	2.65	3.18	3.12	3.63	3.55	3.39	3.40	3.22	2.92	2.62	3.12
2017	2.73	2.73	2.88	2.83	2.86	3.02	3.11	3.29	3.35	3.32	3.12	2.45	2.97
2018	3.70	2.70	2.80	2.70	2.90	2.90	3.10	2.70	2.80	2.90	2.80	2.80	2.90
2019	2.82	2.89	2.84	2.98	2.90	3.17	3.50	3.42	3.56	3.58	3.12	2.56	3.11
2020	2.46	2.44	2.19	1.98	2.53	2.34	2.61	3.21	3.44	3.62	3.68	3.30	2.82

Data Source: City of Statesville; Joe Hudson; 2/7/2012
DMAG submission 2012-2020

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	9833	123	1.21	9623	120	1.154	9408	128	1.202	9805	131	1.29
Commercial	2015	536	1.08	2084	391	0.814	1842	623	1.148	1922	588	1.13
Industrial	93	1409	0.131	96	1771	0.17	92	2598	0.239	96	2347	0.23
Institutional				313	840	0.263	100	800	0.08	98	323	0.03
Wholesale												0.10
Other												0.15
Unaccounted												0.25

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.82
2025	2.97
2035	3.30
2045	3.67
2055	4.08
2065	4.53
2075	5.04

Using Base Year Annual Average Flow	
Year	Flow
Base Year	3.14
2025	3.29
2035	3.62
2045	3.99
2055	4.40
2065	4.85
2075	5.36

Monthly Coefficients	
Month	Coefficient
Jan	0.96
Feb	0.96
Mar	0.95
Apr	0.98
May	1.06
Jun	1.11
Jul	1.10
Aug	1.07
Sep	1.03
Oct	1.00
Nov	0.91
Dec	0.88

Annual Average Flow	
Year	Flow (MGD)
2020	3.17
2025	5.13
2035	5.34
2045	5.66
2055	6.02
2065	6.39
2075	6.76

Monthly Coefficients	
Month	Coefficient
Jan	0.96
Feb	0.96
Mar	0.95
Apr	0.98
May	1.06
Jun	1.11
Jul	1.10
Aug	1.07
Sep	1.03
Oct	1.00
Nov	0.91
Dec	0.88

Historical Data Summary Notes

City of Statesville wholesales water to Salisbury, Iredell Water Corp, Town of Troutman, Watercrest Estates and West Iredell Water Corp.
City has separate intake on the Yadkin River, but typically only operates the Catawba intake.
Current WTP capacity is 15 mgd.
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DMAG submission differs by 0.36 from LWSP 2020 values. Per discussion with the City, proceed with DMAG values for forecast.
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ID No.	NWN-1	Category	Public Water/Wastewater Utilities	ID No.	NWN-1	ID No.	NWN-1	PWS ID:	01-60-010	
Entity	Charlotte Water	Type	Withdrawal	(continued from previous page)				(continued from previous page)		
Facility	Lee S Dukes WTP	Sub-basin	Lake Norman							
Contact	Alan Gaines	IBT?	No							
					<u>PROJECTIONS ANALYSIS</u>					<u>LOCAL WATER SUPPLY PLAN</u>

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)										Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type									
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	9.56	3.46	0.43	0.56	0.11	1.11	2.63	2020	9.56	3.46	0.43	0.56	0.11	1.11	2.63		
2002	13.93	13.55	13.63	16.73	19.89	21.86	20.96	19.58	16.94	15.84	14.20	13.49	16.73	2025	10.31	3.73	0.46	0.60	0.12	1.20	2.84	2025	11.23	4.01	0.44	0.82	0.90	1.19	3.08		
2003	13.47	12.83	12.71	13.39	14.55	15.12	16.11	16.09	17.74	16.61	14.76	13.05	14.71	2035	11.98	4.34	0.54	0.70	0.14	1.39	3.30	2035	14.06	4.97	0.45	1.18	0.90	1.38	3.83		
2004	20.89	20.55	22.63	24.27	25.65	25.47	24.40	22.59	21.09	21.02	18.65	17.39	22.05	2045	13.92	5.04	0.63	0.82	0.16	1.62	3.83	2045	16.52	5.84	0.45	1.39	0.90	1.61	4.49		
2005	17.75	16.37	17.94	19.90	23.23	23.00	24.31	25.51	25.71	22.24	19.94	16.53	21.06	2055	16.18	5.86	0.73	0.95	0.19	1.88	4.45	2055	18.97	6.70	0.45	1.59	0.90	1.84	5.14		
2006	15.68	16.10	19.70	21.82	24.10	23.69	23.09	22.67	20.40	16.76	17.23	17.39	19.91	2065	18.81	6.81	0.85	1.10	0.22	2.18	5.17	2065	21.42	7.57	0.45	1.80	0.90	2.08	5.79		
2007	18.80	18.56	20.70	22.36	24.94	24.01	24.23	24.55	24.91	16.74	16.63	15.35	20.99	2075	21.86	7.91	0.98	1.28	0.26	2.54	6.01	2075	23.88	8.44	0.45	2.00	0.90	2.31	6.45		
2008	13.98	13.99	15.18	14.40	14.04	17.28	17.80	17.77	17.58	16.16	16.34	13.54	15.67	Applied AGR: 1.51% 1.51% 1.51% 1.51% 1.51% 1.51% 1.51%						see notes	see notes	see notes	see notes	see notes	see notes	see notes					
2009	13.83	13.98	14.42	14.88	17.33	17.88	22.04	20.59	20.06	16.53	13.51	13.28	16.55	Analysis and Projections Notes																	
2010	14.01	14.78	14.27	15.56	16.42	17.70	18.71	18.46	18.55	18.61	16.51	14.98	16.56	Assume categorical distribution for Lee S. Dukes WTP is 16.5% of total Charlotte water use, based on withdrawal ratios between Lee S. Dukes WTP and Franklin-Vest WTP's as compared to total.								Assume all values are 16.5% of total projected on 2020 LWSP									
2011	14.59	13.97	12.11	12.10	16.65	22.29	23.22	22.39	20.31	18.51	16.29	14.99	17.31	Annual Growth Rate (AGR) of 1.51 used for all categories, per Mecklenburg County projected AGR																	
2012	15.60	14.85	16.10	16.15	16.49	19.14	22.97	21.09	20.93	18.20	16.80	17.22	17.98	General Comments:																	
2013	17.10	16.97	17.10	17.12	17.85	19.87	17.86	17.87	21.31	21.60	17.05	15.79	18.13	Residential growth (multi-use, subdivision) and high density, BUT overall GPCD is decreasing.																	
2014	16.09	16.36	16.35	15.89	20.72	22.08	22.19	21.28	19.77	18.57	15.63	13.73	18.24	Industrial: Have users over 0.05 MGD, but no new large industrial users are anticipated.																	
2015	14.09	14.70	15.32	16.14	17.85	20.09	19.16	12.16	14.18	12.55	13.54	13.94	15.31	Expect benefits from water loss audits.																	
2016	14.20	14.83	15.05	16.47	18.00	21.31	22.18	22.15	21.95	20.67	17.23	12.24	18.03	Planned Expansion: Current Permitted Capacity: 25.25 MGD. 2015 B&V Water Distribution System Master																	
2017	14.73	15.41	14.94	16.23	17.62	13.39	15.12	14.45	13.43	13.94	10.68	9.10	14.08	plan suggested expansion of Lee S. Dukes WTP by 25MGD (covered under current FERC Permitting of																	
2018	11.10	9.20	8.80	9.30	12.20	15.10	20.80	16.10	14.50	14.20	10.80	10.30	12.73	108 MGD intake on Lake Norman																	
2019	11.49	9.86	10.82	11.59	17.70	18.06	20.53	19.04	20.93	17.74	18.71	17.25	16.18																		
2020	17.59	17.85	17.87	19.54	20.49	15.01	20.29	19.37	17.57	16.35	16.86	15.59	17.87																		

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012

DMAG Submission & NC DEQ - DWR Local Water Supply Plans 2012-2020

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	279751	208	58.31	275346	219	60.34	277625	221	61.47	283813	205	58.28
Commercial	23858	831	19.82	22443	913	20.50	23183	980	22.73	26608	793	21.10
Industrial	208	13361	2.78	254	10559	2.68	299	8903	2.66	300	8746	2.62
Institutional	3015	1630	4.91	2169	2130	4.62	2457	1911	4.70	2169	1575	3.42
Wholesale			0.10		0.12				0.27			0.68
Other			6.54		4.68				5.64			6.77
Unaccounted			17.29		18.39				15.94			16.29

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: Charlotte Water; Maeneen Klein; 3/28/2012

NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes
- 2004 & 2005 withdrawal from Lake Norman is based on the amount of water filtered as raw water meter not accurate
Historical categorical water use shown is for all of Charlotte Water and includes data from both the Lee S. Dukes WTP (Lake Norman) and the Franklin & Vest WTP's (Mountain Island Lake).
Commercial categorical water use includes billed irrigation meters (approximately 7.6 mgd in 2011).
High "unaccounted" and "other" water use in 2010 was the result of a major leak (7-9 MGD) lasting 10-12 months, combined with flushing of large diameter mains during a 3-phase construction project.
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Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	17.87
2025	19.27
2035	22.39
2045	26.02
2055	30.24
2065	35.14
2075	40.84

Using Base Year Annual Average Flow	
Year	Flow
Base Year	17.03
2025	18.43
2035	21.55
2045	25.18
2055	29.40
2065	34.30
2075	40.00

Monthly Coefficients	
Month	Coefficient
Jan	0.88
Feb	0.86
Mar	0.90
Apr	0.95
May	1.08
Jun	1.13
Jul	1.20
Aug	1.13
Sep	1.11
Oct	1.01
Nov	0.91
Dec	0.83

Annual Average Flow	
Year	Flow (MGD)
2020	17.87
2025	21.67
2035	26.77
2045	31.19
2055	35.60
2065	40.02
2075	44.43

Monthly Coefficients	
Month	Coefficient
Jan	0.88
Feb	0.86
Mar	0.90
Apr	0.95
May	1.08
Jun	1.13
Jul	1.20
Aug	1.13
Sep	1.11
Oct	1.01
Nov	0.91
Dec	0.83

ID No.	NWN-2	Category	Public Water/Wastewater Utilities
Entity	Lincoln County	Type	Withdrawal
Facility	Lincoln County WTP	Sub-basin	Lake Norman
Contact	Chuck King	IBT?	No

ID No. NWN-2
(continued from previous page)

ID No. NWN-2 PWS ID: 01-55-035
(continued from previous page)

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.87	1.84	1.81	2.08	2.40	2.67	2.58	2.55	2.18	1.81	1.71	1.76	2.11
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	2.02	2.14	2.45	2.54	2.60	2.70	2.93	2.90	2.88	2.72	2.36	2.26	2.54
2007	2.20	2.29	2.51	2.75	2.95	2.94	2.99	2.84	2.56	2.37	2.24	2.07	2.56
2008	2.16	2.09	2.02	2.14	2.50	2.78	2.83	2.91	2.65	2.56	2.37	2.14	2.43
2009	2.26	2.16	2.19	2.48	2.56	2.89	3.23	2.92	2.85	2.68	2.35	2.19	2.57
2010	2.24	2.16	2.20	2.49	2.68	3.08	3.33	3.15	3.30	3.25	2.64	2.40	2.75
2011	2.48	2.56	2.27	2.47	2.77	3.08	2.95	3.07	2.75	2.61	2.26	2.51	2.65
2012	2.16	2.21	1.98	1.45	2.84	3.13	3.20	2.90	2.43	2.18	2.29	2.38	2.43
2013	2.02	2.28	2.04	2.26	2.64	2.90	2.57	2.73	3.11	2.97	2.87	2.16	2.54
2014	2.79	2.37	2.45	2.44	3.08	3.19	3.24	3.06	3.05	2.79	2.57	2.45	2.79
2015	2.49	2.52	2.50	2.42	3.34	3.68	3.61	3.53	3.42	2.92	2.58	2.43	2.96
2016	2.38	2.40	2.43	2.99	3.12	3.76	3.77	3.68	3.78	3.61	3.23	2.59	3.15
2017	2.62	2.64	2.56	2.70	3.10	3.33	3.56	3.47	3.39	3.38	2.70	2.63	3.01
2018	2.80	2.60	3.50	2.80	3.20	3.60	3.90	3.50	3.50	3.30	2.60	2.50	3.15
2019	3.39	3.39	3.50	3.74	4.75	4.77	5.15	5.09	5.16	4.74	4.01	3.80	4.30
2020	2.74	2.76	2.74	3.13	3.21	3.69	3.93	3.87	3.57	3.56	3.08	2.77	3.25

Data Source: Lincoln County; Burns Whitaker; 1/20/2012

NC DEQ - DWR Local Water Supply Plans

DMAG submission 2012-2020

PROJECTIONS SUMMARY

Year	Flow (MGD)
2020	3.25
2025	3.47
2035	3.93
2045	4.46
2055	5.06
2065	5.74
2075	6.51

Year	Flow
Base Year	2.87
2025	3.08
2035	3.55
2045	4.08
2055	4.68
2065	5.36
2075	6.13

Monthly Coefficients	
Month	Coefficient
Jan	0.85
Feb	0.85
Mar	0.87
Apr	0.90
May	1.06
Jun	1.15
Jul	1.19
Aug	1.15
Sep	1.12
Oct	1.05
Nov	0.93
Dec	0.86

Annual Average Flow	
Year	Flow (MGD)
2020	3.25
2025	4.33
2035	5.23
2045	6.18
2055	7.20
2065	8.26
2075	9.33

Monthly Coefficients	
Month	Coefficient
Jan	0.85
Feb	0.85
Mar	0.87
Apr	0.90
May	1.06
Jun	1.15
Jul	1.19
Aug	1.15
Sep	1.12
Oct	1.05
Nov	0.93
Dec	0.86

PROJECTIONS SUMMARY

Historical Data Summary Notes

Lincoln County wholesales water to the Town of High Shoals (and Lincolnton but no leveraged).

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DMAG submission 2020 avg (3.25 MGD) is lower than LWSP 2020 reported values (3.84 MGD)

Potentially, leverage LWSP historic values.

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ID No.	NWN-3	Category	Public Water/Wastewater Utilities	ID No.	NWN-3	ID No.	NWN-3	PWS ID:	01-49-015
Entity	Town of Mooresville	Type	Withdrawal	(continued from previous page)					
Facility	Mooresville WTP	Sub-basin	Lake Norman						
Contact	M. Fulbright/A. Kraft	IBT?	Yes						

HISTORICAL DATA SUMMARY														PROJECTIONS ANALYSIS												LOCAL WATER SUPPLY PLAN						
Flow Rate Data (MGD)														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)										
														Year	Customer Type						Year	Customer Type										
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted	2020	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted			
2002	3.30	3.20	3.28	4.16	4.64	4.77	4.40	3.85	3.05	3.09	3.01	2.98	3.65	2020	2.59	1.10	2.39	0.30	0.13	0.07	0.33	2020	2.59	1.10	2.39	0.30	0.13	0.07	0.33			
2003	3.12	3.08	3.03	3.16	3.38	3.87	4.47	4.86	4.97	4.74	4.16	4.04	3.91	2025	3.22	1.22	2.31	0.42	0.30	0.68	0.12	2025	3.10	1.18	2.50	0.31	0.76	0.07	0.38			
2004	4.06	4.05	4.04	4.56	5.04	4.69	5.03	4.72	4.28	4.38	4.18	4.24	4.44	2035	4.08	1.40	2.53	0.46	0.45	0.82	0.14	2035	4.25	1.30	2.70	0.33	0.76	0.08	0.46			
2005	4.45	3.66	3.45	3.61	3.72	4.11	4.22	3.96	4.47	4.11	3.74	3.18	3.89	2045	4.78	1.47	2.73	0.49	0.60	0.92	0.16	2045	5.05	1.43	2.90	0.35	0.76	0.08	0.52			
2006	3.14	3.20	3.45	3.61	3.72	4.11	4.22	3.96	4.47	4.11	3.74	3.18	3.74	2055	5.58	1.63	3.01	0.51	0.80	1.05	0.18	2055	5.60	1.63	3.10	0.37	0.76	0.08	0.58			
2007	3.47	3.55	3.75	4.17	5.16	5.39	5.20	5.55	4.57	4.09	3.37	3.21	4.30	2065	6.76	1.75	3.31	0.55	1.10	1.24	0.21	2065	6.40	1.88	3.30	0.39	0.76	0.09	0.66			
2008	3.35	3.30	3.25	3.40	3.70	4.13	4.05	4.13	3.99	4.02	3.71	3.33	3.70	2075	6.81	1.80	3.40	0.55	1.11	1.25	0.22	2075	7.20	2.13	3.50	0.41	0.76	0.09	0.74			
2009	3.42	3.35	3.49	3.71	4.07	4.46	4.83	4.71	4.28	3.96	3.70	3.59	3.97	Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes See Notes																		
2010	3.49	3.62	3.64	3.85	4.30	4.79	5.03	4.77	4.86	4.57	3.88	3.59	4.20	Analysis and Projections Notes																		
2011	3.78	3.76	3.82	4.01	4.33	5.08	4.97	4.79	4.64	4.48	3.90	3.62	4.27	2020 DMAG & LWSP values differ slightly. LWSP categorical percent was applied to DMAG annual average								Assume consistent wholesales remain at 0.756 as suggested by LWSP (contracted amount										
2012	3.83	3.82	4.17	4.66	5.15	5.56	5.66	5.67	4.97	4.79	4.34	3.97	4.72	Forecasted values are aligned with the Water & Wastewater Master Plan Forecast (HDR 2020)								from Aqua & Carolina Water Service of NC)										
2013	4.17	4.10	4.04	4.29	4.75	5.69	5.59	5.43	5.55	5.37	4.70	4.43	4.85	2020 DMAG & LWSP values differ slightly. LWSP categorical percent was applied to DMAG 2020 annual average																		
2014	4.78	4.72	5.30	5.01	5.65	6.20	6.06	5.65	5.60	5.32	4.67	5.16	5.35	General Notes:																		
2015	4.65	4.91	5.03	5.38	6.38	6.94	6.80	6.68	6.35	5.63	5.03	4.74	5.71	Mooresville continues to grow in population and continues to add new water customers.																		
2016	4.91	5.29	5.67	6.26	6.36	7.26	7.15	7.28	7.38	6.60	6.02	4.83	6.25																			
2017	5.07	5.41	5.55	5.79	6.31	7.24	6.93	7.15	6.79	6.59	5.35	5.07	6.11	Niagara Bottling Company & Carolina Beverage are still large industrial users. In previous forecast, 2 MGD																		
2018	5.30	5.30	5.40	6.10	6.70	7.20	7.90	7.40	7.20	6.70	5.90	5.50	6.39	was added in 2015.																		
2019	5.83	5.96	6.18	6.38	7.29	7.53	7.97	8.07	8.58	7.49	6.06	6.05	6.95																			
2020	5.87	6.12	6.32	6.57	7.16	7.48	8.11	7.80	7.26	7.18	6.71	6.39	6.9179																			

Data Source: <Source> <Contact Person>; <Date>

DMAG submission 2012-2020

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	12,387	134	1.66	13,925	129	1.80	14,949	154	2.30	15,776	165	2.60
Commercial	2,163	1,558	3.37	1,971	1,776	3.50	1,790	670	1.20	1,582	695	1.10
Industrial	-					-	32	59,375	1.90	33	72,727	2.40
Institutional	97	2,258	0.22	100	2,000	0.20	195	1,436	0.28	185	1,622	0.30
Wholesale			0.14			0.14						0.1
Other			0.05			0.04						0.071
Unaccounted			0.69			0.71						0.334

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes												
The Town of Mooresville has an inter-basin transfer agreement (IBT) between the Catawba and Rocky River												
basins, as water is withdrawn from the Catawba basin at the WTP and is discharged to the Rocky River basin												
at the WWTP.												
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DMAG and LSWSP 2020 average differs by 0.02 MGD												
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	6.92
2025	8.27
2035	9.88
2045	11.15
2055	12.77
2065	14.91
2075	15.14

Using Base Year Annual Average Flow	
Year	Flow
Base Year	5.16
2025	6.51
2035	8.12
2045	9.39
2055	11.02
2065	13.16
2075	13.39

Monthly Coefficients	
Month	Coefficient
Jan	0.86
Feb	0.86
Mar	0.89
Apr	0.95
May	1.05
Jun	1.14
Jul	1.16
Aug	1.14
Sep	1.11
Oct	1.04
Nov	0.92
Dec	0.87

Annual Average Flow	
Year	Flow (MGD)
2020	6.92
2025	8.29
2035	9.87
2045	11.08
2055	12.11
2065	13.47
2075	14.82

Monthly Coefficients	
Month	Coefficient
Jan	0.86
Feb	0.86
Mar	0.89
Apr	0.95
May	1.05
Jun	1.14
Jul	1.16
Aug	1.14
Sep	1.11
Oct	1.04
Nov	0.92
Dec	0.87

ID No.	NWN-4	Category	Public Water/Wastewater Utilities	ID No.	NWN-4	ID No.	NWN-4	PWS ID:	
Entity	Concord/Kannapolis/Cabarrus Co.	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Future - New-IBT	Sub-basin	Lake Norman						
Contact	Christie Putnam	IBT?	No						

HISTORICAL DATA SUMMARY														PROJECTIONS ANALYSIS												LOCAL WATER SUPPLY PLAN																			
Flow Rate Data (MGD)														Projected Flowrates (MGD) (Using 2020 Data)												Projected Flowrates (MGD)																			
														Year	Customer Type							Year	Customer Type																						
															Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted																
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	--	--	--	--	--	--	--	2020	--	--	--	--	--	--	--	2025	--	--	--	--	--	--	--	2025	--	--	--	--	--	--	--
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	--	--	--	--	--	1.00	--	2025	--	--	--	--	--	--	--	2025	--	--	--	--	--	--	--	2025	--	--	--	--	--	--	--
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	3.00	--	2035	--	--	--	--	--	--	--	2035	--	--	--	--	--	--	--	2035	--	--	--	--	--	--	--
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	--	--	--	--	--	3.00	--	2045	--	--	--	--	--	--	--	2045	--	--	--	--	--	--	--	2045	--	--	--	--	--	--	--
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	--	--	--	--	--	6.00	--	2055	--	--	--	--	--	--	--	2055	--	--	--	--	--	--	--	2055	--	--	--	--	--	--	--
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2065	--	--	--	--	--	6.00	--	2065	--	--	--	--	--	--	--	2065	--	--	--	--	--	--	--	2065	--	--	--	--	--	--	--
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND	2075	--	--	--	--	--	6.00	--	2075	--	--	--	--	--	--	--	2075	--	--	--	--	--	--	--	2075	--	--	--	--	--	--	--
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND	Applied AGR:												See Notes								See Notes											
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND																																
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND	Analysis and Projections Notes												Analysis and Projections Notes																			
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND	Per the 2010 Settlement Agreement between NC & SC, the average daily permitted												Concord 2020 Local Water Supply states 3 MGD in 2021 and additional 3 MGD in 2050																			
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND	IBT transfer from the Catawba Basin is 7.14 MGD (10 MGD max day with 1.4 peaking factor)																															
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND	under normal or Drought Stage 0. Per the agreement, the permitted withdrawal is reduced																															
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND	during drought periods, based on the drought stage.																															
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND																																
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND	For projection purposes, the Catawba IBT average daily withdrawal is based on anticipated																															
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND	Concord & Kannapolis future water demands, future contracts in place with Charlotte-																															
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND	Mecklenburg Utilities (3 MGD in 2021 & 3 MGD add'l in 2050), and IBT drought restrictions																															
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND	Conversations with Concord suggest 1 MGD 2025, 3 MGD 2035-2045; 6 MGD >2050																															
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND																																

Data Source: NCDEQ Concord & Kannapolis IBT Annual Reports

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Historical Data Summary Notes												
No historical data shown above, as the IBT from the Catawba-Wateree Basin is considered a future IBT with projected withdrawals beginning in 2025 (see projections summary).												
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PROJECTIONS SUMMARY										PROJECTIONS SUMMARY									
Using 2020 Data Annual Average Flow			Using Base Year Annual Average Flow			Monthly Coefficients			Annual Average Flow			Monthly Coefficients							
Year	Flow (MGD)		Year	Flow		Month	Coefficient		Year	Flow (MGD)		Month	Coefficient						
2020	--		Base Year	--		Jan	--		2020	--		Jan	--						
2025	1.00		2025	1.00		Feb	--		2025	3.50		Feb	--						
2035	3.00		2035	3.00		Mar	--		2035	3.50		Mar	--						
2045	3.00		2045	3.00		Apr	--		2045	3.50		Apr	--						
2055	6.00		2055	6.00		May	--		2055	6.50		May	--						
2065	6.00		2065	6.00		Jun	--		2065	6.50		Jun	--						
2075	6.00		2075	6.00		Jul	--		2075	6.50		Jul	--						
						Aug	--					Aug	--						
						Sep	--					Sep	--						
						Oct	--					Oct	--						
						Nov	--					Nov	--						
						Dec	--					Dec	--						

ID No.	NWM-2	Category	Public Water/Wastewater Utilities	ID No.	NWM-2	ID No.	NWM-2	PWS ID:	01-36-010
Entity	Two River Utilities/Gastonia	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Gastonia WTP (Mt. Island Lake) (formerly City of Gastonia)	Sub-basin	Mountain Island Lake						
Contact	Kyle Butler	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	12.00	11.50	11.39	12.62	13.30	15.17	15.32	15.17	12.95	12.21	11.21	11.12	12.84
2003	12.10	11.68	11.36	11.60	12.44	12.79	12.73	13.02	13.30	13.14	12.45	11.99	12.39
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	18.00	17.97	18.00	17.57	18.00	18.40	18.00	17.95	18.00	18.02	18.00	18.00	17.99
2007	18.50	18.49	14.58	18.50	18.48	18.50	18.48	18.48	17.49	15.85	15.02	15.00	17.27
2008	15.00	15.00	15.00	14.90	17.29	18.00	17.98	19.06	18.00	18.00	17.93	17.95	17.02
2009	16.79	16.00	15.98	16.00	16.00	15.62	18.47	17.95	17.66	15.30	18.00	18.00	16.82
2010	18.00	18.00	17.98	18.00	18.00	17.98	17.92	18.00	18.00	17.98	17.71	18.00	17.96
2011	18.00	17.48	17.93	17.83	16.29	16.66	18.00	18.00	18.00	18.00	17.98	16.36	17.54
2012	16.33	18.00	19.13	18.29	18.00	17.98	18.00	18.00	18.00	18.00	18.03	18.00	17.98
2013	18.16	16.36	16.82	17.12	14.23	15.64	19.44	19.67	20.33	18.21	18.68	17.98	17.73
2014	18.68	18.15	19.16	19.00	19.00	17.88	16.51	17.39	17.86	16.49	15.53	15.66	17.60
2015	14.28	14.92	17.50	18.00	17.83	17.93	18.22	18.00	18.00	18.13	18.00	18.00	17.41
2016	18.00	18.00	17.60	18.00	18.00	18.60	20.41	19.36	19.56	19.30	19.08	18.00	18.66
2017	18.00	17.91	17.98	18.00	17.85	18.00	18.00	22.44	27.64	18.17	16.05	18.00	19.00
2018	18.70	18.00	18.00	17.90	17.90	19.80	21.80	20.00	20.80	18.50	18.20	18.00	18.97
2019	18.00	18.00	17.98	18.00	20.31	20.03	23.65	23.66	26.16	26.33	18.37	18.16	20.74
2020	17.77	17.81	17.75	17.86	18.00	18.68	21.34	20.03	18.45	18.37	18.00	17.96	18.51

Data Source: NC DEQ - DWR Local Water Supply Plans
DMAG submissions 2012-2020

PROJECTIONS SUMMARY

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	27146	147	3.985	27546	146	4.028	27988	150	4.186	28897	144	4.154
Commercial	2921	735	2.146	2936	730	2.142	2953	762	2.249	2982	690	2.0565
Industrial	113	5584	0.631	112	6617	0.7411	114	6658	0.759	113	5345	0.604
Institutional	190	6005	1.141	189	6641	1.2552	196	6082	1.192	193	4979	0.961
Wholesale			1.88			1.9762			1.93			1.66
Other		-	5.58		-	3.84			5.99			4.98
Unaccounted		-	3.69		-	5.0005			4.44			4.09

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	18.51
2025	19.30
2035	21.02
2045	22.94
2055	25.07
2065	27.46
2075	30.12

Using Base Year Annual Average Flow	
Year	Flow
Base Year	18.08
2025	18.87
2035	20.59
2045	22.51
2055	24.65
2065	27.03
2075	29.69

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	0.96
Mar	0.96
Apr	0.98
May	0.98
Jun	1.00
Jul	1.06
Aug	1.07
Sep	1.08
Oct	1.01
Nov	0.97
Dec	0.97

Annual Average Flow	
Year	Flow (MGD)
2020	18.51
2025	19.11
2035	17.79
2045	19.40
2055	21.58
2065	24.02
2075	26.46

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	0.96
Mar	0.96
Apr	0.98
May	0.98
Jun	1.00
Jul	1.06
Aug	1.07
Sep	1.08
Oct	1.01
Nov	0.97
Dec	0.97

Historical Data Summary Notes

Two Rivers Utilities (TRU) wholesales water to Clover SC, Dallas/ Spencer Mountain Village, Lowell, McAdenville and Ranlo.
Unaccounted water includes raw water discharged to Rankin Lake to replenish raw water supply (approx. 4.5 MGD).
Two surface water sources: Catawba (MT Island lake) and South Fork Catawba. For planning purposes, all withdrawals are assumed to be from the main intake in the Mountain Island Lake sub-basin.
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ID No.	NWY-6	Category	Public Water/Wastewater Utilities	ID No.	NWY-6	ID No.	NWY-6	PWS ID:	01-36-015
Entity	City of Belmont	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Belmont WTP	Sub-basin	Lake Wylie						
Contact	Joseph Roy	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
2002	2.34	2.20	2.24	2.51	2.55	2.87	2.79	2.92	2.62	2.52	2.29	1.95	2.48	2020	0.76	0.22	0.26	0.06	0.12	0.25	0.38	2020	0.76	0.22	0.26	0.06	0.12	0.25	0.38				
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	0.82	0.23	0.33	0.06	0.13	0.26	0.39	2025	0.84	0.24	0.29	0.07	0.12	0.28	0.34				
2004	1.85	1.68	1.71	1.85	2.00	2.01	1.87	1.79	1.70	1.84	1.76	1.97	1.84	2035	0.95	0.27	0.35	0.06	0.13	0.27	0.42	2035	1.03	0.30	0.36	0.08	0.12	0.34	0.33				
2005	2.11	2.19	2.29	2.41	2.20	1.94	1.93	1.91	1.99	1.80	1.77	1.55	2.01	2045	1.10	0.32	0.38	0.07	0.14	0.29	0.45	2045	1.25	0.36	0.43	0.10	0.12	0.41	0.41				
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	1.28	0.37	0.40	0.07	0.15	0.31	0.47	2055	1.52	0.44	0.53	0.12	0.12	0.50	0.50				
2007	1.99	1.92	1.89	1.88	2.07	2.21	1.49	2.41	2.08	1.74	2.03	1.66	1.95	2065	1.48	0.43	0.43	0.08	0.16	0.33	0.50	2065	1.82	0.52	0.63	0.14	0.12	0.60	0.59				
2008	1.81	1.75	1.65	1.77	2.05	2.19	2.00	2.29	1.79	1.80	1.77	1.80	1.89	2075	1.72	0.49	0.46	0.08	0.17	0.35	0.54	2075	2.13	0.61	0.74	0.16	0.12	0.70	0.69				
2009	1.75	1.71	1.68	1.70	1.73	1.91	2.01	1.89	2.04	1.88	1.71	1.66	1.81	Applied AGR: See Notes See Notes See Notes See Notes See Notes See Notes See Notes								See Notes See Notes See Notes See Notes See Notes See Notes See Notes											
2010	1.68	1.74	1.71	1.86	2.04	2.05	2.09	2.14	2.07	1.92	1.68	1.60	1.88	Analysis and Projections Notes												Analysis and Projections Notes							
2011	1.75	1.52	1.55	1.56	1.72	1.87	1.86	2.08	1.90	1.79	1.78	1.64	1.75	Water loss has improved after meter changes;																			
2012	1.61	1.63	1.67	1.78	2.04	2.07	1.99	1.91	1.73	1.83	1.78	1.57	1.80	Growth could occur in southern portion of service area																			
2013	1.58	1.41	1.51	1.57	1.64	1.72	1.61	1.77	1.91	1.92	1.58	1.42	1.64	Developing new warehouse in N. Belmont (>0.05 MGD); added in 2025 and continued county AGR																			
2014	1.57	1.63	1.61	1.57	1.74	1.96	1.85	1.72	1.89	2.09	1.71	1.69	1.75																				
2015	1.55	1.79	1.70	1.68	2.12	2.28	2.31	2.43	2.08	1.84	1.73	1.66	1.93	AGR of 0.63 used for all other categories per Gaston County projected AGR.																			
2016	1.90	1.82	1.93	2.02	2.10	2.50	2.48	2.72	2.51	2.63	2.48	2.30	2.28	AGR for residential and commercial set to 1.5% for planning horizon																			
2017	2.35	1.95	1.83	1.83	1.87	2.10	1.97	2.14	2.14	2.12	1.83	1.73	1.99																				
2018	1.90	1.90	1.70	1.80	2.10	2.30	2.20	2.30	2.50	2.30	1.70	1.50	2.02																				
2019	1.71	1.75	1.76	1.96	2.30	2.35	2.40	2.29	2.42	2.31	2.03	1.86	2.10																				
2020	1.84	1.91	1.86	1.79	1.96	2.11	2.34	2.41	2.25	2.31	1.93	1.85	2.05																				

Data Source: City of Belmont; Chuck Flowers; 2/21/2012

DMAG submissions 2012-2020

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	5333	122	0.651	5677	125	0.7088	6003	131	0.789	5892	129	0.758
Commercial	381	722	0.275	401	724	0.2903	399	799	0.319	331	659	0.218
Industrial	43	8442	0.363	38	7805	0.2966	37	8730	0.323	28	9393	0.263
Institutional	120	1700	0.204	129	1984	0.256	118	975	0.115	136	434	0.059
Wholesale		-			-			-			-	0.122
Other		-			-			-			-	0.25
Unaccounted		-			-			-			-	0.381

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes												
2011 Residential, Commercial, Industrial and Institutional use was reported incorrectly in LWSP; values												
shown are updated based on 4/9/2012 discussion with Joseph Roy (Chief ORC at the WTP)												
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.05
2025	2.22
2035	2.47
2045	2.74
2055	3.06
2065	3.41
2075	3.81

Using Base Year Annual Average Flow	
Year	Flow
Base Year	1.92
2025	2.09
2035	2.33
2045	2.61
2055	2.92
2065	3.28
2075	3.68

Monthly Coefficients	
Month	Coefficient
Jan	0.94
Feb	0.92
Mar	0.91
Apr	0.95
May	1.03
Jun	1.10
Jul	1.06
Aug	1.12
Sep	1.07
Oct	1.04
Nov	0.95
Dec	0.89

Annual Average Flow	
Year	Flow (MGD)
2020	2.05
2025	2.18
2035	2.55
2045	3.08
2055	3.73
2065	4.44
2075	5.15

Monthly Coefficients	
Month	Coefficient
Jan	0.94
Feb	0.92
Mar	0.91
Apr	0.95
May	1.03
Jun	1.10
Jul	1.06
Aug	1.12
Sep	1.07
Oct	1.04
Nov	0.95
Dec	0.89

ID No.	NWY-7	Category	Public Water/Wastewater Utilities	ID No.	NWY-7	ID No.	NWY-7	PWS ID:	01-36-025
Entity	Bessemer City	Type	Withdrawal	(continued from previous page)					(continued from previous page)
Facility	J.V. Tarpley WTP	Sub-basin	Lake Wylie						
Contact	Jason Taylor	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	2.34	2.20	2.24	2.51	2.55	2.87	2.79	2.92	2.62	2.52	2.29	1.95	2.48
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	1.11	1.15	1.18	1.11	1.26	1.31	1.43	1.30	1.06	1.23	1.02	0.94	1.18
2008	1.02	1.01	1.08	1.14	1.21	1.32	1.28	1.00	1.22	1.18	1.19	1.10	1.15
2009	1.02	1.11	0.98	1.26	1.02	1.06	1.13	1.19	1.19	1.35	1.10	1.01	1.12
2010	1.18	1.07	1.12	0.68	1.40	1.17	1.36	1.03	1.02	1.81	1.20	1.20	1.19
2011	1.23	1.16	1.22	1.56	0.50	0.71	0.68	0.99	0.55	0.39	1.30	0.97	0.93
2012	1.06	1.09	1.05	1.19	1.14	1.14	1.18	1.13	1.02	1.14	1.26	1.32	1.14
2013	0.46	--	0.69	0.71	0.77	0.47	0.51	0.39	0.65	0.66	0.35	0.37	0.51
2014	0.95	0.88	0.64	0.72	0.96	0.82	2.35	1.52	1.72	1.47	1.45	1.08	1.22
2015	1.19	1.15	1.10	1.08	1.40	1.17	1.17	1.12	0.79	0.79	0.98	0.98	1.08
2016	1.16	1.12	1.24	1.19	1.27	1.28	1.13	1.31	1.17	1.12	1.08	0.90	1.16
2017	1.28	1.27	1.15	1.23	1.26	1.27	1.29	1.37	1.23	1.17	1.16	1.23	1.24
2018	1.08	1.12	1.01	1.02	1.04	1.16	1.24	1.16	1.09	1.15	1.05	1.06	1.10
2019	1.21	0.99	1.18	1.33	0.88	0.57	0.96	1.39	1.27	1.39	1.39	1.39	1.16
2020	1.15	1.03	1.26	1.27	1.24	1.27	1.30	1.30	1.29	1.27	1.25	1.30	1.25

Data Source: Bessemer City; Melinda Beard; 3/19/2012

NC DEQ Local Water Supply Plan Data 2012-2020

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	2109	123	0.26	2139	122	0.261	2183	124	0.27	2211	111	0.25
Commercial	173	266	0.046	174	230	0.04	183	240	0.0439	187	1128	0.21
Industrial	15	43467	0.652	15	39733	0.596	14	47143	0.66	20	30900	0.62
Institutional												-
Wholesale												-
Other												0.05
Unaccounted												0.10

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes	
Note from previous study: * NWY - 7 & NWY - 8 are used by 1 WTP - both will be treated as one withdrawal	
from Lake Wylie; 1 WTP: 3 mgd capacity	
NC Local Water Supply Plan categorical use includes Bessemer City raw water intake (Catawba basin) and	
purchase from Kings Mountain (Broad River basin).	
2021 flow rate data provided by Bessemer City is not consistent with the reported withdrawals from the	
Catawba basin in the 2021 Local Water Supply Plan.	
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	0.25	0.21	0.63		--	0.05	0.10	2020	0.25	0.21	0.63	--	--	0.05	0.10
2025	0.26	0.22	0.65	--	--	0.05	0.11	2025	0.25	0.16	0.95	--	--	0.05	0.13
2035	0.27	0.23	0.69	--	--	0.06	0.11	2035	0.26	0.04	1.60	--	--	0.05	0.18
2045	0.29	0.25	0.73	--	--	0.06	0.12	2045	0.26	0.05	1.68	--	--	0.05	0.18
2055	0.31	0.27	0.78	--	--	0.07	0.13	2055	0.26	0.05	1.73	--	--	0.06	0.19
2065	0.33	0.28	0.83	--	--	0.07	0.14	2065	0.27	0.05	1.78	--	--	0.06	0.20
2075	0.35	0.30	0.88	--	--	0.07	0.15	2075	0.27	0.05	1.83	--	--	0.06	0.20
Applied AGR:		0.86%	0.86%	0.86%		0.86%	0.86%	See Notes		See Notes	See Notes	See Notes		See Notes	See Notes
Analysis and Projections Notes								Analysis and Projections Notes							
2020 LWSP annual average does not match with customer level data. LWSP categorical values applied to LWSP annual average															
AGR of 0.63 used for all categories per Gaston County projected AGR.															

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.25
2025	1.29
2035	1.37
2045	1.46
2055	1.55
2065	1.65
2075	1.76

Using Base Year Annual Average Flow	
Year	Flow
Base Year	1.10
2025	1.14
2035	1.22
2045	1.31
2055	1.41
2065	1.51
2075	1.61

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	0.91
Mar	0.96
Apr	1.01
May	1.00
Jun	0.98
Jul	1.11
Aug	1.07
Sep	1.00
Oct	1.04
Nov	1.01
Dec	0.94

Annual Average Flow	
Year	Flow (MGD)
2020	1.25
2025	1.54
2035	2.13
2045	2.22
2055	2.29
2065	2.35
2075	2.42

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	0.91
Mar	0.96
Apr	1.01
May	1.00
Jun	0.98
Jul	1.11
Aug	1.07
Sep	1.00
Oct	1.04
Nov	1.01
Dec	0.94

ID No.	NWY-8	Category	Public Water/Wastewater Utilities	ID No.	NWY-8	ID No.	NWY-8	PWS ID:	01-36-025
Entity	Bessemer City	Type	Withdrawal	<i>(continued from previous page)</i>			<i>(continued from previous page)</i>		
Facility	J.V. Tarpley WTP (see above for proj.)	Sub-basin	Lake Wylie						
Contact	Jason Taylor	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>			<u>LOCAL WATER SUPPLY PLAN</u>		

ID No.	NWY-9	Category	Public Water/Wastewater Utilities	ID No.	NWY-9	ID No.	NWY-9	PWS ID:	01-36-030
Entity	City of Cherryville	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Cherryville WTP	Sub-basin	Lake Wylie						
Contact	Patty Hall	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>			<u>LOCAL WATER SUPPLY PLAN</u>		

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)																				
Flow Rate Data (MGD)														Year	Customer Type							Year	Customer Type																			
															Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	0.30	0.07	0.03	0.01	--	0.30	0.04	2020	0.30	0.07	0.03	0.01	--	0.30	0.04													
2002	0.92	0.84	0.82	0.92	0.96	1.01	0.75	0.63	0.58	0.76	0.76	0.77	0.81	2025	0.32	0.07	0.03	0.01	--	0.31	0.04	2025	0.34	0.07	0.04	0.01	--	0.29	0.04													
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	0.35	0.07	0.03	0.01	--	0.33	0.04	2035	0.42	0.08	0.06	0.01	--	0.28	0.05													
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	0.39	0.08	0.04	0.01	--	0.35	0.05	2045	0.50	0.10	0.06	0.01	--	0.28	0.06													
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	0.43	0.08	0.04	0.01	--	0.37	0.05	2055	0.60	0.12	0.07	0.01	--	0.29	0.07													
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2065	0.48	0.09	0.04	0.01	--	0.40	0.05	2065	0.72	0.14	0.07	0.01	--	0.29	0.08													
2007	0.78	0.79	0.81	0.84	0.94	0.91	0.92	0.92	0.76	0.79	0.77	0.80	0.84	2075	0.53	0.09	0.04	0.01	--	0.42	0.06	2075	0.83	0.16	0.08	0.02	--	0.29	0.09													
2008	0.79	0.76	0.71	0.74	0.84	0.92	0.87	0.85	0.85	0.08	0.71	0.69	0.73	Applied AGR:		1.00%	0.63%	0.63%	0.63%	0.63%	0.63%	See Notes		See Notes	See Notes	See Notes	See Notes	See Notes	See Notes													
2009	0.68	0.65	0.64	0.74	0.67	0.73	0.75	0.74	0.72	0.70	0.68	0.69	0.70	Analysis and Projections Notes														Analysis and Projections Notes														
2010	0.69	0.65	0.64	0.69	0.73	0.79	0.79	0.75	0.77	0.70	0.69	0.70	0.72																													
2011	0.70	0.67	0.67	0.67	0.75	0.81	0.75	0.75	0.67	0.67	0.66	0.65	0.70	AGR of 1 used for Residential,														2020 LWSP Projections														
2012	0.67	0.66	0.65	0.65	0.77	0.78	0.73	0.71	0.67	0.69	0.73	0.68	0.70	AGR of 0.63 used for all other categories per Gaston County projected AGR.																												
2013	0.57	0.59	0.63	0.62	0.63	0.65	0.62	0.66	0.65	0.59	0.56	0.55	0.61																													
2014	0.70	0.66	0.61	0.61	0.68	0.73	0.70	0.69	0.67	0.70	0.66	0.65	0.67																													
2015	0.67	0.64	0.55	0.56	0.66	0.71	0.66	0.65	0.65	0.62	0.59	0.59	0.63																													
2016	0.63	0.62	0.62	0.66	0.62	0.71	0.68	0.65	0.66	0.61	0.55	0.53	0.63																													
2017	0.61	0.58	0.52	0.51	0.53	0.57	0.57	0.56	0.57	0.58	0.54	0.55	0.56	--																												
2018	0.82	0.68	0.65	0.67	0.74	0.77	0.74	0.73	0.73	0.68	0.72	0.69	0.72	--																												
2019	0.67	0.64	0.68	0.66	0.75	0.78	0.92	0.84	0.89	0.80	0.70	0.68	0.75	--																												
2020	0.68	0.67	0.74	0.79	0.80	0.80	0.83	0.80	0.77	0.75	0.73	0.64	0.75																													

Data Source: City of Cherryville; Patty Hall; 2/23/2012

DMAG Submission & NC DEQ - DWR Local Water Supply Plans 2012-2020

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	2615	113.96	0.298	2641	113.97	0.301	2651	113.16484	0.3	2690	113.01	0.304
Commercial	257	280.16	0.072	246	300.81	0.074	263	266.1597	0.07	274	244.53	0.067
Industrial	19	1894.7	0.036	19	2631.6	0.05	19	2526.3158	0.048	20	1500	0.03
Institutional	29	310.34	0.009	30	333.33	0.01	30	466.66667	0.014	31	225.81	0.007
Wholesale		-			-			-			-	--
Other		-			-			-			-	0.30
Unaccounted		-			-			-			-	0.04

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Historical Data Summary Notes												
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.75
2025	0.78
2035	0.84
2045	0.91
2055	0.98
2065	1.06
2075	1.15

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.69
2025	0.72
2035	0.79
2045	0.85
2055	0.93
2065	1.01
2075	1.10

Monthly Coefficients	
Month	Coefficient
Jan	1.01
Feb	0.96
Mar	0.95
Apr	0.98
May	1.05
Jun	1.11
Jul	1.07
Aug	1.04
Sep	1.01
Oct	0.92
Nov	0.96
Dec	0.94

PROJECTIONS SUMMARY

Annual Average Flow	
Year	Flow (MGD)
2020	0.75
2025	0.80
2035	0.90
2045	1.02
2055	1.16
2065	1.31
2075	1.47

Monthly Coefficients	
Month	Coefficient
Jan	1.01
Feb	0.96
Mar	0.95
Apr	0.98
May	1.05
Jun	1.11
Jul	1.07
Aug	1.04
Sep	1.01
Oct	0.92
Nov	0.96
Dec	0.94

NWY-10	Category	Public Water/Wastewater Utilities	ID No.	NWY-10	ID No.	NWY-10	PWS ID:	01-36-065
Entity	Town of Dallas	Type	Withdrawal	(continued from previous page)			(continued from previous page)	
Facility	Dallas WTP	Sub-basin	Lake Wylie					
Contact	Zackery Foreman	IBT?	No					

HISTORICAL DATA SUMMARY														PROJECTIONS ANALYSIS														LOCAL WATER SUPPLY PLAN							
Flow Rate Data (MGD)														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	Year	Customer Type						Year	Customer Type													
															Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted						
2002	0.58	0.56	0.55	0.55	0.61	0.68	0.65	0.59	0.50	0.54	0.55	0.50	0.57	2020	0.30	0.11	0.01	0.07	--	0.01	0.08	2020	0.30	0.11	0.01	0.07		0.01	0.08						
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	0.31	0.12	0.01	0.07	--	0.01	0.08	2025	0.30	0.11	0.01	0.07		0.01	0.08						
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	0.33	0.12	0.01	0.07	--	0.01	0.08	2035	0.32	0.11	0.01	0.07		0.01	0.08						
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	0.35	0.13	0.01	0.08	--	0.01	0.09	2045	0.33	0.11	0.01	0.07		0.01	0.08						
2006	0.59	0.60	0.57	0.59	0.58	0.61	0.67	0.59	0.58	0.57	0.61	0.55	0.59	2055	0.37	0.14	0.01	0.08	--	0.01	0.10	2055	0.34	0.11	0.01	0.07		0.01	0.08						
2007	0.57	0.60	0.57	0.60	0.65	0.68	0.69	0.74	0.69	0.65	0.61	0.64	0.64	2065	0.40	0.15	0.01	0.09	--	0.01	0.10	2065	0.35	0.11	0.01	0.07		0.01	0.08						
2008	0.50	0.59	0.56	0.62	0.64	0.70	0.71	0.67	0.63	0.62	0.60	0.60	0.62	2075	0.42	0.16	0.01	0.09	--	0.01	0.11	2075	0.36	0.11	0.01	0.07		0.01	0.08						
2009	0.64	0.63	0.61	0.55	0.60	0.59	0.64	0.66	0.55	0.47	0.46	0.49	0.57	Applied AGR: 0.63% 0.63% 0.63% 0.63% 0.63% 0.63%						See Notes See Notes See Notes See Notes See Notes															
2010	0.61	0.54	0.54	0.55	0.55	0.60	0.58	0.18	0.21	0.79	0.56	0.61	0.53	Analysis and Projections Notes																					
2011	0.54	0.71	0.63	0.60	0.60	0.61	0.60	0.65	0.66	0.62	0.61	0.59	0.62	AGR of 0.63 used for all categories per Gaston County projected AGR.																					
2012	0.59	0.59	0.68	0.66	0.62	0.66	0.64	0.63	0.65	0.63	0.56	0.62	0.63																						
2013	0.63	0.63	0.61	0.65	0.66	0.73	0.71	0.69	0.65	0.63	0.61	0.61	0.65	--																					
2014	0.71	0.72	0.63	0.58	0.64	0.63	0.67	0.65	0.67	0.64	0.61	0.71	0.65	--																					
2015	0.54	0.56	0.44	0.49	0.48	0.58	0.63	0.45	0.48	0.49	0.57	0.64	0.53	--																					
2016	0.59	0.59	0.54	0.56	0.56	0.56	0.57	0.59	0.65	0.63	0.62	0.59	0.59	--																					
2017	0.58	0.59	0.54	0.63	0.61	0.58	0.85	0.66	0.60	0.54	0.74	0.60	0.62	--																					
2018	0.69	0.61	0.58	0.59	0.59	0.63	0.68	0.64	0.62	0.59	0.57	0.59	0.62	--																					
2019	0.58	0.58	0.57	0.59	0.62	0.60	0.62	0.63	0.64	0.60	0.61	0.65	0.61	--																					
2020	0.62	0.59	0.60	0.59	0.55	0.59	0.60	0.59	0.55	0.54	0.53	0.51	0.57																						

Data Source: Town of Dallas; Amelia Hamrick; 2/27/2012

DMAG Submission & NC DEQ - DWR Local Water Supply Plans 2012-2020

Customer Data												Using 2020 Data		Using Base Year		Monthly Coefficients		Annual Average Flow		Monthly Coefficients		
Customer Type	2017			2018			2019			2020			Annual Average Flow		Annual Average Flow		Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III	Year	Flow	Year	Flow						
Residential	2524	124.8	0.315	2578	110.55	0.285	2598	102.00154	0.265	2620	114.16	0.2991	2020	0.57	Base Year	0.60	Jan	0.99	2020	0.57	Jan	0.99
Commercial	318	537.74	0.171	281	444.84	0.125	281	427.04626	0.12	295	377.97	0.1115	2025	0.59	2025	0.62	Feb	1.01	2025	0.58	Feb	1.01
Industrial		#####	0	5	1020	0.0051	5	1400	0.007	5	1600	0.008	2035	0.63	2035	0.66	Mar	0.96	2035	0.59	Mar	0.96
Institutional		#####	0	36	2119.4	0.0763	40	1600	0.064	45	1493.3	0.0672	2045	0.67	2045	0.70	Apr	0.98	2045	0.60	Apr	0.98
Wholesale		-		-	-		-	-		-	-	--	2055	0.71	2055	0.74	May	1.00	2055	0.61	May	1.00
Other		-		-	-		-	-		-	-	0.01	2065	0.76	2065	0.79	Jun	1.04	2065	0.63	Jun	1.04
Unaccounted		-		-	-		-	-		-	-	0.08	2075	0.81	2075	0.84	Jul	1.09	2075	0.64	Jul	1.09

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Historical Data Summary Notes	
Dallas has an interconnection with Gastonia that started in 2003, with planned 0.14 mgd average, 0.5 mgd contract and planned future use of 1 mgd by 2020. However, Dallas has not regularly used this interconnection since the contract's inception in 2003.	
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ID No.	NWY-13	Category	Public Water/Wastewater Utilities	ID No.	NWY-13	ID No.	NWY-13	PWS ID:	01-18-015
Entity	City of Newton	Type	Withdrawal	(continued from previous page)					
Facility	Newton WTP (Jacob's Fork)	Sub-basin	Lake Wylie						
Contact	James B. Wentz	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type							
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2002	2.36	2.31	2.21	2.40	2.57	3.15	3.40	2.56	2.19	2.13	2.15	2.25	2.47	2020	0.66	0.79	0.09	0.01	2.00	0.15	0.25	2020	0.66	0.79	0.09	0.01	2.00	0.15	0.25
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	0.68	0.82	0.10	0.01	2.07	0.16	0.26	2025	0.66	0.88	0.11	0.01	2.75	0.15	0.28
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	0.73	0.88	0.10	0.01	2.21	0.17	0.28	2035	0.68	1.00	0.13	0.02	2.75	0.16	0.32
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	0.78	0.94	0.11	0.01	2.37	0.18	0.30	2045	0.70	1.05	0.13	0.02	2.75	0.17	0.34
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	0.84	1.01	0.12	0.01	2.54	0.19	0.32	2055	0.72	1.10	0.13	0.02	2.75	0.18	0.36
2007	2.90	3.01	3.08	3.17	3.81	3.92	3.72	4.04	3.62	3.35	3.13	3.05	3.40	2065	0.89	1.08	0.13	0.01	2.73	0.20	0.34	2065	0.75	1.15	0.14	0.02	2.75	0.19	0.37
2008	3.04	3.11	3.30	3.41	3.71	4.15	3.87	3.94	3.67	3.44	3.41	3.37	3.53	2075	0.96	1.16	0.14	0.01	2.92	0.22	0.37	2075	0.77	1.21	0.14	0.02	2.75	0.20	0.39
2009	3.35	3.29	3.34	3.41	3.58	3.81	4.20	3.94	3.89	3.69	ag Daily	3.35	3.33	Applied AGR:	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes
2010	3.47	3.30	3.41	3.51	3.72	4.18	4.37	4.06	4.08	4.00	3.73	3.61	3.79	Analysis and Projections Notes								Analysis and Projections Notes							
2011	3.83	3.66	3.55	3.65	3.84	4.23	4.15	4.07	3.84	3.60	3.32	3.28	3.75	AGR of 0.70 used for all categories per Catawba County projected AGR.								2020 LWSP keeps wholesale projections at 2.75 through their planning horizon							
2012	3.29	3.31	3.38	3.38	3.64	3.94	4.01	3.93	3.61	3.56	3.29	3.18	3.54	Projections shown are for both the Jacob's Fork and City Lake intakes, which both serve the															
2013	3.37	3.29	3.30	3.43	3.62	4.05	4.01	4.06	4.01	3.93	3.56	3.22	3.66	Newton WTP and reside in the Wylie sub-basin.															
2014	3.51	3.35	3.19	3.37	3.58	3.59	3.65	3.40	3.35	3.29	3.28	3.29	3.40	--															
2015	3.64	4.16	4.05	3.86	4.36	4.49	3.99	3.83	3.68	3.56	3.49	3.40	3.87	Used reported surface water source (3.9465 MGD) for forecast															
2016	3.67	3.73	3.67	3.74	3.75	4.22	4.08	4.27	4.42	3.80	3.68	3.45	3.87	--															
2017	3.52	3.50	3.40	3.56	3.63	3.82	3.77	3.93	3.75	3.74	3.51	3.47	3.63	--															
2018	3.92	3.52	3.44	3.55	3.83	4.18	4.20	4.08	3.84	3.72	3.58	3.60	3.79	--															
2019	3.66	3.72	3.68	3.80	4.48	4.27	4.35	4.32	4.37	4.18	3.82	3.92	4.05	--															
2020	3.89	3.80	3.92	4.03	4.15	4.47	4.75	4.43	4.29	4.30	4.24	4.10	4.20																

Data Source: City of Newton; Wilce Martin; 1/12/2012

DMAG Submission & NC DEQ - DWR Local Water Supply Plans 2012-2020

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	5940	140	0.832	5954	122	0.725	5932	113	0.671	6033	108.57	0.655
Commercial	498	454	0.226	668	377	0.2519	648	1423	0.922	635	1248.8	0.793
Industrial	60	2483	0.149	92	977	0.0899	91	934	0.085	91	1033	0.094
Institutional		#DIV/0!	0		#DIV/0!	0	21	905	0.019	21	428.57	0.009
Wholesale												2.00
Other		-			-			-			-	0.15
Unaccounted		-			-			-			-	0.25

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: NC DEQ - DWR Local Water Supply Plans

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	3.95
2025	4.09
2035	4.38
2045	4.69
2055	5.03
2065	5.39
2075	5.78

Using Base Year Annual Average Flow	
Year	Flow
Base Year	3.70
2025	3.84
2035	4.13
2045	4.45
2055	4.79
2065	5.15
2075	5.53

Monthly Coefficients	
Month	Coefficient
Jan	0.95
Feb	0.94
Mar	0.94
Apr	0.96
May	1.04
Jun	1.11
Jul	1.11
Aug	1.08
Sep	1.04
Oct	1.00
Nov	0.89
Dec	0.93

Annual Average Flow	
Year	Flow (MGD)
2020	3.95
2025	4.86
2035	5.06
2045	5.16
2055	5.26
2065	5.37
2075	5.47

Monthly Coefficients	
Month	Coefficient
Jan	0.95
Feb	0.94
Mar	0.94
Apr	0.96
May	1.04
Jun	1.11
Jul	1.11
Aug	1.08
Sep	1.04
Oct	1.00
Nov	0.89
Dec	0.93

Historical Data Summary Notes
2002 & 2007 monthly data obtained from NC DEQ - DWR Local Water Supply Plans for respective years.
City of Newton wholesales water to Energy United Water Corporation, hickory, and Maiden.
--City has two intakes (Jacob's Fork - NWY -13) and City Lake (NWY - 14); both intakes are treated at the Newton WTP and are in the same sub-basin (Lake Wylie).
--Historical data shown includes both the Jacob's Fork and City Lake intakes.
--
LWSP categorial data does not match LWSP monthly data. Note on LSWP:
The difference between the average monthly withdrawal of 4.1974 MGD and the reported surface water source of 3.9465 MGD is caused by the amount of rain that we received in 2020.

ID No.	SWY-1	Category	Public Water/Wastewater Utilities	ID No.	SWY-1	ID No.	SWY-1	PWS ID:
Entity	Rock Hill	Type	Withdrawal	(continued from previous page)				(continued from previous page)
Facility	City of Rock Hill WTP (Lake Wylie)		Sub-basin	Lake Wylie				
Contact	Jimmy Bagley		IBT?	No				

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type							Year	Customer Type						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND	2020	4.61	2.19			9.97	0.55	4.14	2020							
2003	12.48	11.52	12.13	12.53	12.26	13.00	13.35	13.68	14.83	14.16	13.03	11.90	12.91	2025	5.00	2.37	--	--	10.81	0.59	4.42	2025							
2004	11.64	11.77	12.01	13.50	16.72	15.01	16.51	15.20	14.06	13.65	12.11	11.93	13.68	2035	5.88	2.79	--	--	12.71	0.67	5.03	2035							
2005	12.19	12.30	12.04	12.72	15.29	15.11	16.16	15.97	18.30	15.90	14.48	12.80	14.45	2045	6.91	3.28	--	--	14.95	0.76	5.72	2045							
2006	12.17	11.51	13.09	14.77	15.16	16.80	17.78	19.62	15.50	15.62	13.49	12.38	14.85	2055	8.13	3.86	--	--	17.58	0.86	6.51	2055							
2007	12.33	12.45	14.40	15.34	18.87	19.56	18.82	20.84	18.27	15.19	12.84	12.07	15.94	2065	9.56	4.54	--	--	20.68	0.98	7.40	2065							
2008	11.39	11.95	12.01	11.71	13.79	18.17	16.55	16.88	14.32	13.71	12.75	11.43	13.73	2075	11.24	5.34	--	--	24.32	1.12	8.42	2075							
2009	11.57	11.74	11.91	13.01	13.96	15.90	17.63	16.13	15.74	13.31	11.52	10.95	13.62	Applied AGR:	1.63%	1.63%	see notes	see notes	1.63%	1.30%	1.30%	see notes	see notes	see notes	see notes	see notes	see notes	see notes	
2010	11.53	11.44	11.59	13.92	14.69	17.45	18.01	16.76	18.17	17.02	13.99	13.83	14.88	Analysis and Projections Notes								Analysis and Projections Notes							
2011	13.36	12.47	12.65	13.41	15.05	17.55	16.97	16.31	15.08	14.82	13.13	12.08	14.42	Recent growth due to transportation corridor; Annexing 2,500 acres (75% developable)								LWSP projection methodology is not applicable for SC entity							
2012	12.29	12.25	13.41	14.84	16.30	18.06	17.73	16.53	15.46	15.14	15.11	13.08	15.02	New Growth: Atrium Sports medicine building, potential for golf course & school															
2013	12.16	12.28	12.26	14.14	15.20	15.71	14.16	14.80	17.63	16.39	14.43	13.22	14.37																
2014	13.58	13.51	13.22	15.22	18.14	16.10	19.77	19.20	18.84	18.51	16.10	15.38	16.49	Commercial represents IND, COM, and INST values. Applied 1.63% AGR per York County															
2015	15.44	15.72	15.82	16.42	22.50	24.31	24.12	23.88	22.16	17.93	16.30	15.30	19.18	Wholesale Applied 1.63% AGR per York County															
2016	15.74	15.61	16.68	19.35	19.66	24.00	26.83	27.49	24.84	23.19	20.59	16.65	20.90	Other, Unaccounted for: 1.3% AGR applied															
2017	16.70	16.59	16.98	18.44	19.97	22.56	23.66	23.27	22.56	22.07	18.89	17.40	19.94																
2018	18.66	17.00	17.70	19.10	21.62	24.49	25.71	25.70	23.25	22.87	19.25	18.36	21.17																
2019	18.15	17.59	18.12	18.81	23.46	24.17	25.20	23.73	26.25	24.92	20.56	18.82	21.67																
2020	18.23	18.55	19.73	21.06	20.77	23.54	25.85	24.92	23.93	22.37	20.08	18.35	21.46																

Data Source: City of Rock Hill; Bill Yetman; 2/3/2012

DMAG Submission 2012-2020

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential	29,022	161.6	4.69	29,512	153.16	4.52	30,309	146.82	4.45	30,793	149.71	4.61
Commercial	2,697	#####	2.9	2,730	963.37	2.63	2,819	982.62	2.77	2,779	788.05	2.19
Industrial												
Institutional												
Wholesale	3	3E+06	7.87	3	3E+06	8.14	3	2670000	8.01	5	2E+06	9.97
Other (Irrig.)	985	710.66	0.7	982	651.73	0.64	1105	660.63	0.73	1203	457.19	0.55
Unaccounted			3.78			5.24			5.71			4.14

Notes: I - Number of customers; II - Per customer flow (gpd/c); III - Total Flow (MGD)

Data Source: City of Rock Hill; Reese Walsh; 2/17/2022

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	21.46
2025	23.19
2035	27.08
2045	31.63
2055	36.95
2065	43.17
2075	50.45

Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	17.18
2025	18.91
2035	22.80
2045	27.34
2055	32.66
2065	38.89
2075	46.16

Monthly Coefficients	
Month	Coefficient
Jan	0.84
Feb	0.82
Mar	0.86
Apr	0.93
May	1.05
Jun	1.14
Jul	1.19
Aug	1.17
Sep	1.14
Oct	1.06
Nov	0.93
Dec	0.86

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.84
Feb	0.82
Mar	0.86
Apr	0.93
May	1.05
Jun	1.14
Jul	1.19
Aug	1.17
Sep	1.14
Oct	1.06
Nov	0.93
Dec	0.86

Historical Data Summary Notes	
Rock Hill "commercial" categorical water use includes "industrial" and "institutional"	
City is a wholesale water provider to Fort Mill, York County & Utility Services of SC Inc.	
Categorical use provided by the City.	
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ID No.	SWF-5	Category	Public Water/Wastewater Utilities	ID No.	SWF-5	ID No.	SWF-5	PWS ID:	
Entity	Rock Hill	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Catawba River Plant (Emergency/Backup)	Sub-basin	Fishing Creek Reservoir						
Contact	Jimmy Bagley	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	SWF-6	Category	Public Water/Wastewater Utilities	ID No.	SWF-6	ID No.	SWF-6	PWS ID:	
Entity	Union County/Lancaster County	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Catawba River Plant	Sub-basin	Fishing Creek Reservoir						
Contact	Aubrey Lofton	IBT?	Yes						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	10.49	10.10	10.39	13.18	14.35	17.23	15.27	13.99	12.06	11.80	10.65	10.58	12.52
2003	11.19	10.43	10.43	10.73	11.61	11.66	12.44	12.36	14.42	13.53	12.65	11.68	11.94
2004	11.28	11.99	12.54	13.58	18.76	16.23	16.79	17.84	17.08	17.05	16.85	16.85	15.59
2005	12.19	12.11	11.60	13.52	16.83	16.78	19.04	-	-	-	-	12.19	9.52
2006	12.60	12.96	14.07	17.10	20.27	20.30	22.51	18.49	17.50	17.36	14.90	13.74	16.84
2007	13.30	13.80	15.85	18.18	24.47	20.20	20.65	24.22	20.88	16.87	15.09	13.81	18.14
2008	14.79	13.31	13.43	17.09	17.25	21.00	18.46	19.09	16.38	17.10	15.70	14.45	16.51
2009	13.90	13.20	12.97	14.68	16.08	18.74	20.33	18.94	18.80	16.66	14.04	13.66	16.02
2010	14.12	13.78	13.13	16.51	17.76	18.79	19.44	18.32	19.77	18.54	14.53	13.80	16.55
2011	14.70	12.56	12.14	13.30	15.78	19.58	18.94	17.27	16.52	15.81	13.91	12.19	15.24
2012	13.68	13.30	14.12	15.27	17.46	18.71	18.20	12.86	15.92	16.24	16.17	14.09	15.50
2013	14.07	13.83	14.18	15.71	17.55	18.24	16.84	17.38	20.75	19.43	16.10	14.91	16.59
2014	15.60	14.99	14.80	16.03	20.54	21.67	20.58	20.89	20.11	19.66	16.61	15.32	18.09
2015	14.92	14.63	15.53	16.48	22.32	24.05	24.61	22.82	22.36	19.41	16.33	15.26	19.09
2016	16.03	15.16	15.78	20.52	20.47	25.60	27.51	25.75	24.27	24.87	21.74	17.68	21.30
2017	17.77	17.67	17.39	19.13	21.07	23.34	25.09	25.25	23.72	23.20	19.50	18.01	20.95
2018	19.60	17.80	18.00	18.80	23.20	27.30	27.80	26.60	25.90	17.30	21.20	18.90	21.88
2019	20.36	18.31	15.60	30.63	34.81	36.00	27.42	24.85	27.88	12.96	19.33	16.94	23.75
2020	16.90	16.98	19.65	21.13	20.40	27.86	25.67	23.82	22.53	23.24	21.02	20.00	21.61

Data Source: <Source>; <Contact Person>; <Date>

DMAG submission 2012-2020

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential												
Commercial												
Industrial												
Institutional												
Wholesale												
Other												
Unaccounted												

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: <Source>; <Contact Person>; <Date>

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	21.61
2025	23.90
2035	29.23
2045	35.75
2055	43.72
2065	53.47
2075	65.40

Using Base Year Annual Average Flow	
Year	Flow
Base Year	18.54
2025	20.83
2035	26.16
2045	32.68
2055	40.65
2065	50.40
2075	62.33

Monthly Coefficients	
Month	Coefficient
Jan	0.85
Feb	0.81
Mar	0.83
Apr	0.98
May	1.13
Jun	1.23
Jul	1.21
Aug	1.10
Sep	1.09
Oct	0.98
Nov	0.90
Dec	0.87

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.85
Feb	0.81
Mar	0.83
Apr	0.98
May	1.13
Jun	1.23
Jul	1.21
Aug	1.10
Sep	1.09
Oct	0.98
Nov	0.90
Dec	0.87

Historical Data Summary Notes

Historical flow rate includes both withdrawals and returns at the treatment plant.
large industrial users
--Carolina Water >80k GPD (2020)
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ID No.	SWF-7	Category	Public Water/Wastewater Utilities	ID No.	SWF-7	ID No.	SWF-7	PWS ID:	
Entity	Chester Metro	Type	Withdrawal	(continued from previous page)			(continued from previous page)		
Facility	Chester WTP	Sub-basin	Fishing Creek Reservoir						
Contact	Fred Castles	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	3.26	3.22	3.42	3.42	3.45	3.69	3.79	4.22	3.95	3.26	3.25	2.85	3.48
2003	3.14	3.31	3.24	2.94	2.95	3.14	3.05	3.21	3.12	3.14	2.81	2.86	3.07
2004	3.14	3.20	3.24	3.21	2.95	3.14	3.06	3.21	3.12	3.14	2.81	2.86	3.09
2005	2.71	2.66	2.57	2.70	3.01	2.89	2.97	3.07	2.80	2.79	2.56	2.60	2.78
2006	2.62	2.64	2.74	2.68	2.80	3.23	3.02	3.00	2.85	2.77	2.64	2.50	2.79
2007	2.07	2.06	1.88	2.08	1.99	2.31	2.23	2.35	2.23	1.92	2.41	2.33	2.15
2008	2.40	2.30	2.42	2.44	2.52	2.73	2.75	2.67	2.48	2.43	2.37	2.21	2.48
2009	2.41	2.23	2.35	2.31	2.24	2.43	2.65	2.75	3.12	3.01	2.64	2.18	2.53
2010	2.72	2.76	2.52	2.64	2.59	2.59	2.80	2.37	2.86	2.58	2.46	2.69	2.63
2011	2.89	2.86	2.57	2.79	2.91	3.15	3.16	3.29	3.35	3.03	2.98	2.92	2.99
2012	3.05	3.56	3.35	3.30	3.31	3.50	3.65	3.43	3.39	3.27	2.95	2.47	3.27
2013	2.91	3.37	3.23	3.11	2.75	2.55	2.91	2.68	3.01	2.83	3.01	2.91	2.94
2014	2.64	3.01	3.23	2.73	2.75	2.94	2.83	2.57	2.79	2.50	2.73	2.42	2.76
2015	2.97	3.02	3.08	3.33	3.07	3.19	3.33	3.88	3.07	3.12	3.04	3.08	3.18
2016	3.13	3.15	3.09	2.92	2.99	3.40	3.31	3.58	3.60	3.11	3.04	3.04	3.20
2017	3.10	3.46	3.22	3.33	3.22	3.51	3.38	3.60	3.58	3.58	3.33	3.13	3.37
2018	3.63	3.14	3.19	3.18	3.22	3.61	3.55	3.44	3.29	3.22	2.71	2.57	3.23
2019	2.71	3.04	2.96	2.63	2.93	2.99	2.84	2.88	3.24	2.88	2.83	2.61	2.88
2020	2.51	2.64	2.54	2.39	2.56	2.56	2.76	2.93	2.79	2.74	2.56	2.60	2.63

Data Source: Water Supply Update, Email from Lauren Gustafson 3/8/12

DMAG submission 2012-2020

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		#####			-			-			-	
Commercial		317733			-			-			-	
Industrial		#####			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: Email from Lauren Gustafson 3/8/12

Historical Data Summary Notes												
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Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.63
2025	5.78
2035	7.05
2045	8.59
2055	10.47
2065	12.77
2075	15.56

Using Base Year Annual Average Flow	
Year	Flow
Base Year	2.87
2025	6.02
2035	7.28
2045	8.83
2055	10.71
2065	13.00
2075	15.80

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	1.00
Mar	0.99
Apr	0.98
May	0.98
Jun	1.04
Jul	1.05
Aug	1.07
Sep	1.06
Oct	1.00
Nov	0.96
Dec	0.92

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.97
Feb	1.00
Mar	0.99
Apr	0.98
May	0.98
Jun	1.04
Jul	1.05
Aug	1.07
Sep	1.06
Oct	1.00
Nov	0.96
Dec	0.92

ID No.	SWW-1	Category	Public Water/Wastewater Utilities	ID No.	SWW-1	ID No.	SWW-1	PWS ID:	
Entity	Camden	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	City of Camden WTP	Sub-basin	Lake Wateree						
Contact	Tom Couch	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	2.58	2.48	2.42	2.73	2.83	3.02	3.21	3.15	2.75	2.63	2.87	2.42	2.76
2003	2.55	2.58	2.42	2.24	2.31	2.37	2.56	2.83	2.55	2.96	2.51	2.34	2.52
2004	2.44	2.46	2.55	2.68	2.84	3.06	2.94	2.93	2.93	2.70	2.45	2.38	2.70
2005	2.31	2.40	2.48	2.58	2.87	2.71	2.71	2.75	3.27	2.70	2.59	2.61	2.67
2006	2.49	2.56	2.61	2.81	2.68	2.88	3.04	2.83	2.63	2.53	2.31	2.34	2.64
2007	2.18	2.24	2.45	2.56	2.97	2.90	2.97	3.13	2.78	2.47	2.03	1.92	2.55
2008	1.89	1.98	2.06	2.22	2.40	2.90	2.60	2.35	2.33	2.07	1.93	1.92	2.22
2009	1.89	1.89	2.05	2.00	2.05	2.27	2.49	2.36	2.43	2.18	1.86	1.89	2.12
2010	1.97	1.96	1.86	2.34	2.52	2.52	2.63	2.50	2.65	2.36	2.08	2.09	2.29
2011	2.02	1.96	1.94	2.06	2.21	2.68	2.70	2.58	2.42	2.18	1.99	1.89	2.22
2012	1.65	1.67	1.80	1.96	2.23	2.33	2.49	2.34	2.12	2.13	2.22	2.14	2.09
2013	2.16	2.23	1.84	1.86	2.01	2.05	1.96	2.02	2.24	2.10	1.94	1.84	2.02
2014	1.96	1.95	1.67	1.89	2.19	2.17	2.22	2.02	1.88	1.88	1.77	1.70	1.94
2015	1.68	1.72	1.76	1.93	2.23	2.53	2.42	2.35	2.33	1.96	1.91	1.90	2.06
2016	1.92	1.90	2.00	2.14	2.23	2.41	2.24	2.22	2.19	2.02	1.90	1.59	2.06
2017	1.66	1.67	1.82	1.82	2.00	2.28	2.63	2.41	2.02	1.95	1.75	1.82	1.99
2018	2.00	1.90	1.90	2.00	2.20	2.50	2.40	2.30	2.30	2.00	1.90	1.80	2.10
2019	1.72	1.77	1.75	1.72	2.06	2.02	2.18	2.22	2.47	2.53	2.30	2.20	2.08
2020	2.04	1.82	1.70	1.83	2.00	1.83	2.22	2.05	2.03	1.92	1.89	1.75	1.92

Data Source: Water Supply Updates, Meeting with Tom Couch, 1/23/12, 2002-2003 from Previous Report
DMAG submission 2012-2020

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential												
Commercial												
Industrial												
Institutional												
Wholesale												
Other												
Unaccounted												

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: Meeting with Tom Couch, 1/23/12

Historical Data Summary Notes												
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	--	1.92	2020							
2025	--	--	--	--	--	--	2.15	2025							
2035	--	--	--	--	--	--	2.69	2035							
2045	--	--	--	--	--	--	2.83	2045							
2055	--	--	--	--	--	--	2.97	2055							
2065	--	--	--	--	--	--	3.13	2065							
2075	--	--	--	--	--	--	3.29	2075							
Applied AGR:	See notes	See notes					See notes		See notes	See notes					See notes
Analysis and Projections Notes								Analysis and Projections Notes							
AGR of 2.26 used for all categories until 2035, per City of Camden 2007 Comp plan projected AGR.								SC Entity, so NC Local Water Supply Plan forecast is not applicable							
AGR of 0.5 used for all categories after 2035, per Kershaw County projected AGR.															
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.92
2025	2.15
2035	2.69
2045	2.83
2055	2.97
2065	3.13
2075	3.29

Using Base Year Annual Average Flow	
Year	Flow
Base Year	2.15
2025	2.38
2035	2.92
2045	3.06
2055	3.20
2065	3.36
2075	3.52

Monthly Coefficients	
Month	Coefficient
Jan	0.91
Feb	0.91
Mar	0.91
Apr	0.96
May	1.04
Jun	1.10
Jul	1.13
Aug	1.10
Sep	1.08
Oct	1.01
Nov	0.94
Dec	0.90

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.91
Feb	0.91
Mar	0.91
Apr	0.96
May	1.04
Jun	1.10
Jul	1.13
Aug	1.10
Sep	1.08
Oct	1.01
Nov	0.94
Dec	0.90

ID No.	SWW-2	Category	Public Water/Wastewater Utilities	ID No.	SWW-2	ID No.	SWW-2	PWS ID:	
Entity	Lugoff Elgin Water Authority	Type	Withdrawal	(continued from previous page)				(continued from previous page)	
Facility	Lugoff-Elgin WTP	Sub-basin	Lake Wateree						
Contact	Mike Hancock	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	2.12	2.16	2.38	2.45	2.38	2.56	2.53	2.50	2.46	2.08	(MGD)	2.12	2.15
2003	2.08	1.91	1.86	1.90	2.07	2.27	2.08	2.10	2.16	2.00	(MGD)	2.08	1.88
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	1.59	1.61	1.74	2.18	2.24	2.34	2.49	2.49	2.51	2.64	1.98	2.02	2.16
2007	1.87	1.98	1.99	2.21	2.83	2.52	2.42	2.81	3.13	--	shed (M	1.87	1.97
2008	1.72	1.72	1.86	1.93	2.46	2.76	2.50	2.28	2.11	2.06	1.79	1.67	2.07
2009	1.76	1.68	1.61	2.00	2.32	2.51	2.44	2.35	2.20	1.76	1.62	1.59	1.99
2010	1.74	1.60	1.52	2.02	2.28	2.45	2.32	2.16	2.33	1.95	1.57	1.85	1.98
2011	1.72	1.62	1.89	2.00	2.28	2.52	2.45	2.32	2.20	1.82	1.63	1.70	2.01
2012	1.93	1.86	2.00	2.34	2.42	2.50	2.44	2.29	2.21	2.10	1.89	1.83	2.15
2013	1.83	1.87	1.89	2.07	2.40	2.46	2.24	2.26	2.40	2.23	2.00	1.93	2.13
2014	2.19	1.95	1.95	2.29	2.69	2.73	2.69	2.46	2.32	2.34	2.09	1.91	2.30
2015	1.84	2.01	1.88	2.18	2.75	3.02	2.86	2.81	2.48	2.38	1.95	1.85	2.34
2016	1.78	1.79	2.15	2.59	2.59	2.90	3.26	3.03	2.53	2.31	2.10	1.96	2.42
2017	2.02	2.11	2.30	2.61	2.68	2.76	2.69	2.77	2.60	2.36	2.14	2.56	2.47
2018	2.60	2.20	2.10	2.30	2.50	2.90	2.90	2.70	2.60	2.50	2.20	2.10	2.47
2019	2.16	1.97	2.05	2.40	3.11	3.05	3.22	2.98	3.06	2.71	2.39	2.23	2.61
2020	2.05	2.10	2.30	2.74	2.79	2.96	3.09	2.90	2.66	2.38	2.25	2.20	2.54

Data Source: Annual Water Use Reports (2007-2011)

DMAG submissions (2012-2020 values)

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		166.00			-			-			-	1.4885
Commercial		-			-			-			-	0.5067
Industrial		-			-			-			-	0.1012
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	0.4408

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: Data mailed from Mike Hancock, 2/13/12

Historical Data Summary Notes												
--Used Finished Water for flowrate in 2006. For other years if return was provided for Lagoons, it was subtracted from the withdrawal. If none provided, 8% of withdrawal was subtracted to account for return												
-- Contacted B&C for 2003-2005 data												
-- Industrial was considered the 6-inch meter, the rest was considered Commercial. Note that total does not match Water Use Report Data for 2011.												
--												
Categorical values based on 2011 categorical % consumption												
--												
--												

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.54
2025	5.11
2035	6.29
2045	7.47
2055	8.65
2065	9.83
2075	12.00

Using Base Year Annual Average Flow	
Year	Flow
Base Year	2.24
2025	4.81
2035	5.99
2045	7.17
2055	8.35
2065	9.53
2075	11.70

Monthly Coefficients	
Month	Coefficient
Jan	0.88
Feb	0.85
Mar	0.89
Apr	1.02
May	1.14
Jun	1.20
Jul	1.19
Aug	1.15
Sep	1.11
Oct	0.95
Nov	0.73
Dec	0.89

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.88
Feb	0.85
Mar	0.89
Apr	1.02
May	1.14
Jun	1.20
Jul	1.19
Aug	1.15
Sep	1.11
Oct	0.95
Nov	0.73
Dec	0.89

ID No.	NRJ-3	Category	Public Water/Wastewater Utilities	ID No.	NRJ-3	ID No.	NRJ-3	PWS ID:	
Entity	City of Marion	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Marion WTP	Sub-basin	Lake James						
Contact	Ben Worley	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.26	0.26	0.25	0.25	0.26	0.28	0.27	0.28	0.26	0.26	0.24	0.25	0.26
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
2010	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
2011	0.28	0.28	0.27	0.27	0.28	0.30	0.30	0.30	0.28	0.28	0.26	0.26	0.28
2012	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2013	0.28	0.22	0.29	0.20	0.32	0.21	0.32	0.27	0.19	0.24	0.19	0.20	0.25
2014	0.04	0.04	0.04	0.05	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2015	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.06	0.04
2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.07	0.07	0.06	0.10	0.11	0.07	0.07	0.08	0.08	0.09	0.10	0.07	0.08
2018	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
2019	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC DEQ - DWR Local Water Supply Plans
USEPA NPDES DMR & DMAG submission 2012-2020

Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	0.03	--	2020							
2025	--	--	--	--	--	0.03	--	2025							
2035	--	--	--	--	--	0.03	--	2035							
2045	--	--	--	--	--	0.04	--	2045							
2055	--	--	--	--	--	0.04	--	2055							
2065	--	--	--	--	--	0.04	--	2065							
2075	--	--	--	--	--	0.04	--	2075							
Applied AGR:															
Analysis and Projections Notes								Analysis and Projections Notes							
Projected WTP backwash return is 1.9% of the projected water use listed in sheet NWJ-2.								LWSP forecasting approach is completed for returns.							
Use historical average discharge as average of 2015-2019 value, due to ND in 2020.															
Average 1.9% represents historical average from the past 5 years.															
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Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		--			--			--			--	
Commercial		--			--			--			--	
Industrial		--			--			--			--	
Institutional		--			--			--			--	
Wholesale		--			--			--			--	
Other		--			--			--			--	
Unaccounted		--			--			--			--	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.03
2025	0.03
2035	0.03
2045	0.04
2055	0.04
2065	0.04
2075	0.04

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.07
2025	0.07
2035	0.08
2045	0.08
2055	0.08
2065	0.08
2075	0.08

Monthly Coefficients	
Month	Coefficient
Jan	1.04
Feb	0.96
Mar	1.00
Apr	0.97
May	1.10
Jun	0.97
Jul	1.08
Aug	1.05
Sep	0.94
Oct	1.01
Nov	0.94
Dec	0.94

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.04
Feb	0.96
Mar	1.00
Apr	0.97
May	1.10
Jun	0.97
Jul	1.08
Aug	1.05
Sep	0.94
Oct	1.01
Nov	0.94
Dec	0.94

Historical Data Summary Notes	
City of Marion WTP backwash discharge data referenced from NC DEQ - DWR Local Water Supply Plans for NPDES permit number NC0055221 (Nicks Creek).	
LWSP only lists average annual daily discharge. Monthly values determined using WTP withdrawal monthly coefficients per sheet NWJ-2.	
Assumed 1.9% of withdrawn water is returned back to lake from WTP, as suggested by historical flow data.	
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ID No.	NRR-3	Category	Public Water/Wastewater Utilities	ID No.	NRR-3	ID No.	NRR-3	PWS ID:	0
Entity	City of Lenoir	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Lower Creek WWTP	Sub-basin	Lake Rhodhiss						
Contact	Radford L. Thomas	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRJ-8	Category	Public Water/Wastewater Utilities - Domestic	ID No.	NRJ-8	ID No.	NRJ-8	PWS ID:	
Entity	Linville Resorts, Inc	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Linville Resorts Incorporated	Sub-basin	Lake James						
Contact	Alan Burchell	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRR-4	Category	Public Water/Wastewater Utilities	ID No.	NRR-4	ID No.	NRR-4	PWS ID:	0
Entity	City of Marion	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Corpening Creek WWTP	Sub-basin	Lake Rhodhiss						
Contact	Ben Worley	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>			<u>LOCAL WATER SUPPLY PLAN</u>		

ID No.	NRR-5	Category	Public Water/Wastewater Utilities	ID No.	NRR-5	ID No.	NRR-5	PWS ID:	0
Entity	City of Morganton	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Catawba River Pollution Control Facility	Sub-basin	Lake Rhodhiss						
Contact	Brad Boris	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	3.70	3.38	3.73	3.39	3.29	3.23	3.12	3.36	3.91	4.07	4.26	4.40	3.66
2003	3.68	4.31	4.92	5.54	5.15	4.35	4.30	3.90	3.92	3.55	3.41	3.15	4.18
2004	2.65	2.90	3.18	3.55	3.82	4.08	4.02	3.91	4.62	3.29	3.28	2.90	3.52
2005	2.65	3.01	3.32	3.85	3.60	4.12	4.24	4.95	4.15	4.33	3.81	3.90	3.83
2006	4.32	3.52	3.65	4.19	4.68	5.22	5.13	5.74	5.74	4.61	4.77	4.45	4.67
2007	4.81	4.29	4.84	4.60	4.61	5.17	5.45	5.58	5.90	5.00	4.13	4.10	4.88
2008	4.19	4.28	4.68	4.73	4.77	5.03	4.00	3.97	3.97	3.68	3.20	3.39	4.16
2009	4.19	4.43	4.68	4.73	4.77	5.03	4.00	3.97	3.97	3.68	3.20	3.39	4.17
2010	5.42	5.36	4.94	4.23	4.32	4.50	4.06	4.68	4.60	4.52	4.73	5.16	4.71
2011	4.19	4.54	5.65	4.57	5.03	4.43	4.03	4.45	4.93	4.26	4.47	5.13	4.64
2012	4.30	4.50	4.60	4.80	5.30	4.80	4.80	4.80	4.90	4.80	4.50	4.30	4.70
2013	6.63	5.63	4.89	4.80	6.16	5.88	7.63	6.22	4.80	5.72	5.37	5.54	5.78
2014	5.30	4.80	4.90	4.80	4.40	4.20	4.30	4.40	5.10	4.80	4.60	4.60	4.68
2015	4.40	4.10	4.30	4.70	3.90	4.00	3.60	4.10	4.70	5.70	6.00	6.50	4.67
2016	5.10	6.00	4.30	4.20	4.40	3.30	3.90	4.20	3.50	3.60	3.90	3.30	4.14
2017	3.90	3.30	3.80	5.80	4.80	4.30	4.00	4.10	3.80	4.30	4.40	4.40	4.25
2018	5.70	6.50	5.50	7.00	6.60	5.80	5.10	5.90	5.80	6.90	7.40	9.60	6.48
2019	9.00	10.10	7.00	7.70	5.50	8.00	4.80	4.40	4.90	5.00	5.50	5.90	6.45
2020	5.40	7.50	5.10	4.70	5.60	5.00	4.00	5.70	5.90	6.00	6.90	5.80	5.62

Data Source: City of Morganton; Don Danford; 2/10/2012
NC DEQ - DWR Local Water Supply Plans & DMAG Submission (2012-2020)

Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	5.62	--	2020							
2025	--	--	--	--	--	4.23	--	2025							
2035	--	--	--	--	--	4.58	--	2035							
2045	--	--	--	--	--	4.96	--	2045							
2055	--	--	--	--	--	5.38	--	2055							
2065	--	--	--	--	--	5.83	--	2065							
2075	--	--	--	--	--	6.33	--	2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Projected WWTP return @ CRPCF is 52.05% of the projected water use listed in sheet NWR-3.								LWSP forecasting approach is completed for returns.							
Upgrades in progress at WWTP; although there are no plans for expansion of the facility.															
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Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	5.62
2025	4.23
2035	4.58
2045	4.96
2055	5.38
2065	5.83
2075	6.33

Using Base Year Annual Average Flow	
Year	Flow
Base Year	4.93
2025	3.54
2035	3.89
2045	4.27
2055	4.69
2065	5.14
2075	5.64

Monthly Coefficients	
Month	Coefficient
Jan	1.00
Feb	1.04
Mar	0.99
Apr	1.03
May	1.02
Jun	1.01
Jul	0.95
Aug	0.99
Sep	1.00
Oct	0.98
Nov	0.98
Dec	1.01

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.00
Feb	1.04
Mar	0.99
Apr	1.03
May	1.02
Jun	1.01
Jul	0.95
Aug	0.99
Sep	1.00
Oct	0.98
Nov	0.98
Dec	1.01

Historical Data Summary Notes	
Assumed 52.05% of withdrawn WTP water is returned back to lake at the WWTP, as suggested by historical flow data.	
City of Morganton has agreement with Glen Alpine to treat this municipality's wastewater.	
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ID No.	NRR-7	Category	Public Water/Wastewater Utilities	ID No.	NRR-7	ID No.	NRR-7	PWS ID:	0
Entity	Town of Valdese	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Lake Rhodiss WWTP	Sub-basin	Lake Rhodhiss						
Contact	Greg Padgett	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	4.71	4.70	4.68	4.94	4.87	4.72	4.09	4.59	4.13	4.09	4.03	3.89	4.45
2003	3.70	4.36	5.23	5.42	4.99	4.63	4.36	4.99	4.66	4.64	4.33	3.88	4.60
2004	4.17	4.46	4.35	4.28	4.29	4.59	3.88	4.14	4.63	3.94	4.15	3.94	4.23
2005	4.04	4.02	4.33	4.34	3.82	4.07	3.60	4.43	4.00	4.24	3.50	3.57	4.00
2006	3.62	3.29	3.47	2.87	2.76	3.21	2.93	3.03	2.75	2.57	2.91	2.71	3.01
2007	3.48	2.79	2.97	2.43	2.71	2.70	2.13	2.65	2.67	2.71	2.67	2.19	2.67
2008	2.68	2.57	2.58	2.61	2.21	2.00	1.99	2.43	2.25	2.17	1.71	1.80	2.25
2009	2.02	1.64	2.56	2.18	2.34	2.00	1.49	1.73	1.77	1.64	2.53	3.54	2.12
2010	3.25	3.09	2.25	1.84	1.80	1.87	1.36	1.94	1.68	1.56	1.46	1.62	1.97
2011	1.88	2.11	2.65	1.84	1.89	2.19	1.50	1.90	1.86	1.68	1.61	1.99	1.92
2012	2.03	2.33	2.50	2.02	1.95	1.91	1.93	1.64	1.95	2.12	1.79	1.80	2.00
2013	3.42	2.47	2.53	2.32	2.96	3.17	3.12	1.89	1.81	1.82	1.83	2.63	2.50
2014	2.61	1.66	1.53	1.75	1.69	1.79	1.74	1.76	2.21	1.82	1.93	1.83	1.86
2015	3.12	2.79	2.54	2.16	1.54	1.55	1.64	1.92	2.01	2.58	2.93	3.08	2.32
2016	1.84	2.21	1.58	1.37	1.60	1.60	1.71	2.41	1.60	1.35	1.35	1.27	1.66
2017	1.97	1.32	1.55	2.27	1.65	1.71	1.33	1.64	1.58	1.53	1.42	1.28	1.60
2018	1.55	2.73	1.61	2.09	1.81	1.79	1.51	1.89	1.92	2.17	2.34	2.75	2.01
2019	2.70	3.10	2.60	2.00	1.50	2.70	1.90	1.80	1.60	1.90	1.80	1.80	2.11
2020	2.02	3.03	1.81	1.62	2.81	1.59	1.49	2.69	2.50	2.81	2.63	2.07	2.25

Data Source: Town of Valdese; David Cook; 2/10/2012
NC DEQ - DWR Local Water Supply Plans & DMAG Submission (2012-2020)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes												
Town of Valdese also treats a portion of Burke County wastewater (0.075 to 0.1 mgd) and treats the Town of Drexel's wastewater.												
WWTP capacity is 7.5 mgd.												
Assumed 69.76% of withdrawn WTP water is returned back to lake at the WWTP, as suggested by historical flow data.												
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	2.25	--	2020							
2025	--	--	--	--	--	2.30	--	2025							
2035	--	--	--	--	--	2.40	--	2035							
2045	--	--	--	--	--	2.50	--	2045							
2055	--	--	--	--	--	2.60	--	2055							
2065	--	--	--	--	--	2.71	--	2065							
2075	--	--	--	--	--	2.83	--	2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
AGR of 0.41 applied based on Burke County AGR								LWSP forecasting approach is completed for returns.							
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Previous Analysis:															
Projected WWTP return is 69.9% of the projected water use listed in sheet NWR-4.															

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.25
2025	2.30
2035	2.40
2045	2.50
2055	2.60
2065	2.71
2075	2.83

Using Base Year Annual Average Flow	
Year	Flow
Base Year	2.15
2025	2.20
2035	2.29
2045	2.39
2055	2.50
2065	2.61
2075	2.72

Monthly Coefficients	
Month	Coefficient
Jan	1.11
Feb	1.10
Mar	1.08
Apr	1.02
May	0.99
Jun	1.01
Jul	0.88
Aug	1.00
Sep	0.96
Oct	0.96
Nov	0.95
Dec	0.96

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

PROJECTIONS SUMMARY

Monthly Coefficients	
Month	Coefficient
Jan	1.11
Feb	1.10
Mar	1.08
Apr	1.02
May	0.99
Jun	1.01
Jul	0.88
Aug	1.00
Sep	0.96
Oct	0.96
Nov	0.95
Dec	0.96

ID No.	NRH-4	Category	Public Water/Wastewater Utilities	ID No.	NRH-4	ID No.	NRH-4	PWS ID:	
Entity	City of Lenoir	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Gunpowder Creek WWTP	Sub-basin	Lake Hickory						
Contact	Radford L. Thomas	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.01	0.75	0.88	0.75	0.73	0.72	0.66	0.75	0.87	1.01	1.24	1.14	0.88
2003	0.82	1.06	1.38	1.65	1.33	1.28	1.34	1.20	0.99	0.91	0.87	0.90	1.14
2004	0.75	1.13	0.81	0.92	0.75	1.08	0.88	0.78	1.34	0.83	1.10	1.12	0.95
2005	0.96	0.83	1.10	1.19	0.85	0.96	1.00	0.84	0.74	1.00	0.86	0.95	0.94
2006	0.89	0.83	0.93	0.87	0.76	0.74	0.65	0.96	1.15	0.94	1.37	1.14	0.94
2007	1.72	1.07	1.50	1.06	0.99	0.98	0.98	0.96	1.00	1.01	1.00	1.07	1.11
2008	1.09	1.15	1.08	1.07	0.89	0.84	0.95	1.06	0.95	0.92	0.89	1.10	1.00
2009	1.22	0.91	1.39	1.02	1.47	1.63	0.86	0.91	1.01	0.96	1.40	1.95	1.23
2010	1.53	2.20	1.54	1.07	0.96	0.86	0.85	1.04	0.88	0.95	0.97	1.19	1.16
2011	1.09	1.25	1.73	1.11	1.13	0.97	0.90	0.83	0.96	0.88	1.24	1.46	1.13
2012	1.01	0.90	1.04	0.98	1.08	0.97	1.01	1.01	1.11	1.12	0.95	1.07	1.02
2013	1.61	1.35	1.31	1.18	1.52	1.45	1.70	1.02	0.91	0.89	1.00	1.33	1.27
2014	1.19	1.00	1.06	1.19	0.99	0.94	0.96	1.04	1.15	1.29	1.24	1.12	1.10
2015	1.19	1.02	1.04	1.14	1.00	0.93	0.87	0.88	0.98	1.22	1.37	1.60	1.10
2016	1.17	1.36	0.99	0.95	0.90	0.85	0.95	1.01	0.81	0.82	0.79	0.81	0.95
2017	0.98	0.84	0.91	1.32	1.31	1.11	1.04	1.06	1.09	1.19	1.16	1.03	1.09
2018	1.22	1.43	1.15	1.41	1.27	1.21	1.05	1.28	1.12	1.26	1.45	1.67	1.29
2019	1.74	1.86	1.37	1.40	1.18	1.51	1.12	1.11	1.09	1.17	1.16	1.41	1.34
2020	1.42	1.65	1.26	1.32	1.65	1.25	1.09	1.70	1.51	1.80	1.72	1.63	1.50

Data Source: City of Lenoir; Mark Townsend; 2/8/2012
NC DEQ - DWR Local Water Supply Plans & DMAG Submission (2012-2020)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes												
Assumed 17.74% of withdrawn WTP water is returned back to lake at the Lower Creek WWTP, as suggested by historical flow data.												
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	1.50	--	2020							
2025	--	--	--	--	--	1.54	--	2025							
2035	--	--	--	--	--	1.64	--	2035							
2045	--	--	--	--	--	1.74	--	2045							
2055	--	--	--	--	--	1.84	--	2055							
2065	--	--	--	--	--	1.96	--	2065							
2075	--	--	--	--	--	2.07	--	2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Projected WWTP return @ Lower Creek WWTP is 17.75% of the projected water use listed in sheet NWR-2. However, this methodology underestimates near-term WW flow. Therefore, AGR of 0.59 is used for WWTP return per Caldwell County projected AGR.								LWSP forecasting approach is completed for returns.							
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NC0023981															
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.50
2025	1.54
2035	1.64
2045	1.74
2055	1.84
2065	1.96
2075	2.07

Using Base Year Annual Average Flow	
Year	Flow
Base Year	1.15
2025	1.19
2035	1.29
2045	1.39
2055	1.49
2065	1.60
2075	1.72

Monthly Coefficients	
Month	Coefficient
Jan	1.07
Feb	1.07
Mar	1.06
Apr	1.02
May	0.98
Jun	0.96
Jul	0.89
Aug	0.92
Sep	0.93
Oct	0.95
Nov	1.03
Dec	1.12

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.07
Feb	1.07
Mar	1.06
Apr	1.02
May	0.98
Jun	0.96
Jul	0.89
Aug	0.92
Sep	0.93
Oct	0.95
Nov	1.03
Dec	1.12

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)															
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type															
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted								
	2002	0.18	0.15	0.17	0.19	0.19	0.18	0.19	0.18	0.17	0.20	0.20	0.18	2020	--	--	--	--	--	0.21	--	2020															
	2003	0.14	0.13	0.18	0.21	0.23	0.20	0.19	0.19	0.16	0.15	0.15	0.16	2025	--	--	--	--	--	0.15	--	2025															
	2004	0.14	0.15	0.14	0.17	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.18	2035	--	--	--	--	--	0.14	--	2035															
	2005	0.17	0.15	0.16	0.15	0.13	0.16	0.17	0.18	0.14	0.16	0.17	0.04	2045	--	--	--	--	--	0.10	--	2045															
	2006	0.17	0.12	0.14	0.17	0.12	0.12	0.19	0.20	0.19	0.17	0.16	0.13	2055	--	--	--	--	--	0.06	--	2055															
	2007	0.18	0.15	0.17	0.14	0.16	0.16	0.15	0.17	0.16	0.16	0.12	0.15	2065	--	--	--	--	--	0.00	--	2065															
	2008	0.13	0.14	0.15	0.17	0.15	0.16	0.16	0.18	0.16	0.14	0.12	0.13	2075	--	--	--	--	--	0.00	--	2075															
	2009	0.14	0.12	0.18	0.15	0.15	0.20	0.13	0.14	0.14	0.14	0.17	0.17	Applied AGR:												See Notes											
	2010	0.16	0.20	0.16	0.17	0.16	0.16	0.16	0.15	0.15	0.17	0.13	0.13	Analysis and Projections Notes												Analysis and Projections Notes											
	2011	0.12	0.14	0.16	0.14	0.13	0.15	0.15	0.14	0.15	0.13	0.15	0.14	Projected WWTP return @ McLin Creek WWTP is 1.28% of the projected water use listed in sheet NWH-1.										LWSP forecasting approach is completed for returns.													
	2012	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.13	0.14	0.13	0.13	0.15																								
	2013	0.16	0.16	0.14	0.16	0.15	0.14	0.20	0.18	0.15	0.14	0.15	0.18																								
	2014	0.17	0.17	0.18	0.17	0.14	0.14	0.14	0.16	0.15	0.14	0.14	0.14																								
	2015	0.15	0.12	0.15	0.16	0.13	0.15	0.14	0.15	0.14	0.17	0.18	0.21	Previous Projections- need to verify:																							
	2016	0.16	0.17	0.14	0.12	0.13	0.13	0.14	0.12	0.12	0.11	0.11	0.11	This facility is projected to send 20% of its wastewater flow to the Hickory-Catawba WWTP (see sheet NRN-6) by 2015, 40% by 2025, 60% by 2035, 80% by 2045 and 100% by 2055.																							
	2017	0.14	0.12	0.13	0.18	0.16	0.16	0.18	0.14	0.14	0.14	0.13	0.13	--																							
	2018	0.13	0.16	0.15	0.17	0.18	0.17	0.15	0.17	0.18	0.18	0.20	0.24	--																							
	2019	0.21	0.23	0.19	0.18	0.18	0.20	0.17	0.17	0.16	0.18	0.16	0.20																								
	2020	0.20	0.23	0.18	0.17	0.21	0.21	0.18	0.23	0.22	0.23	0.23	0.21																								

Data Source: City of Hickory; Kevin Greer; 2/8/2012

NC DEQ - DWR Local Water Supply Plans & DMAG Submission (2012-2020)

Customer Data													Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients		Annual Average Flow		Monthly Coefficients	
Customer Type	2017			2018			2019			2020			Year	Flow (MGD)	Year	Flow	Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III										
Residential		-			-			-			-		2020	0.21	Base Year	0.16	Jan	0.98	2020	--	Jan	0.98
Commercial		-			-			-			-		2025	0.15	2025	0.10	Feb	0.97	2025	--	Feb	0.97
Industrial		-			-			-			-		2035	0.14	2035	0.09	Mar	1.00	2035	--	Mar	1.00
Institutional		-			-			-			-		2045	0.10	2045	0.05	Apr	1.03	2045	--	Apr	1.03
Wholesale		-			-			-			-		2055	0.06	2055	--	May	0.99	2055	--	May	0.99
Other		-			-			-			-		2065	0.00	2065	--	Jun	1.02	2065	--	Jun	1.02
Unaccounted		-			-			-			-		2075	0.00	2075	--	Jul	1.02	2075	--	Jul	1.02
																	Aug	1.05			Aug	1.05
																	Sep	0.99			Sep	0.99
																	Oct	0.98			Oct	0.98
																	Nov	0.97			Nov	0.97
																	Dec	0.99			Dec	0.99

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Historical Data Summary Notes	
This facility is under the authority of the City of Claremont, but the City of Hickory provides OM&M.	
City purchases water from Conover, who purchases water from Hickory. Therefore compare WW flows to the City Hickory WTP flows.	
Assumed 1.28% of withdrawn Hickory WTP water is returned back to lake at the McLin WWTP, as suggested by historical flow data.	
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ID No.	NRN-2	Category	Public Water/Wastewater Utilities	ID No.	NRN-2	ID No.	NRN-2	PWS ID:	0
Entity	City of Claremont	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	North WWTP	Sub-basin	Lake Norman						
Contact	Shawn Pennell	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type							
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2002	0.05	0.05	0.06	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.06	0.05	2020	--	--	--	--	--	0.08	--	2020							
2003	0.06	0.06	0.07	0.09	0.09	0.08	0.08	0.07	0.06	0.06	0.06	0.05	0.07	2025	--	--	--	--	--	0.05	--	2025							
2004	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2035	--	--	--	--	--	0.05	--	2035							
2005	0.05	0.05	0.05	0.05	0.08	0.14	0.12	0.14	0.17	0.11	0.11	0.15	0.10	2045	--	--	--	--	--	0.02	--	2045							
2006	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	2055	--	--	--	--	--	0.00	--	2055							
2007	0.05	0.05	0.08	0.07	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	2065	--	--	--	--	--	0.00	--	2065							
2008	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.07	0.07	0.06	0.06	0.07	0.06	2075	--	--	--	--	--	0.00	--	2075							
2009	0.07	0.06	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.04	0.05	0.06	0.07	Applied AGR:								See Notes							
2010	0.06	0.06	0.05	0.06	0.06	0.06	0.07	0.09	0.09	0.11	0.10	0.11	0.08	Analysis and Projections Notes															
2011	0.08	0.08	0.10	0.09	0.10	0.10	0.09	0.06	0.05	0.05	0.07	0.07	0.08	Projected WWTP return @ North WWTP is 0.62% of the projected water use listed in sheet NWH-1.										LWSP forecasting approach is completed for returns.					
2012	0.06	0.06	0.07	0.06	0.07	0.06	0.06	0.07	0.07	0.07	0.06	0.07	0.06	This facility is projected to send 20% of its wastewater flow to the Hickory-Catawba WWTP (see sheet NRN-6) by 2015, 40% by 2025, 60% by 2035, 80% by 2045 and 100% by 2055.															
2013	0.07	0.07	0.06	0.07	0.06	0.06	0.09	0.08	0.07	0.06	0.07	0.08	0.07	--															
2014	0.08	0.08	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	--															
2015	0.08	0.06	0.08	0.08	0.07	0.08	0.07	0.08	0.07	0.09	0.09	0.11	0.08	--															
2016	0.09	0.10	0.08	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.07	--															
2017	0.06	0.05	0.06	0.08	0.07	0.07	0.08	0.06	0.06	0.06	0.06	0.05	0.06	--															
2018	0.06	0.07	0.07	0.08	0.08	0.07	0.06	0.07	0.08	0.08	0.09	0.10	0.08	--															
2019	0.08	0.09	0.08	0.07	0.07	0.08	0.07	0.07	0.06	0.07	0.06	0.08	0.07	--															
2020	0.08	0.09	0.07	0.07	0.08	0.08	0.07	0.09	0.09	0.09	0.09	0.08	0.08																

Data Source: City of Hickory; Kevin Greer; 2/8/2012

NC DEQ - DWR Local Water Supply Plans & DMAG Submission (2012-2020)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.08
2025	0.05
2035	0.05
2045	0.02
2055	0.00
2065	0.00
2075	0.00

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.07
2025	0.04
2035	0.03
2045	0.01
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.93
Feb	0.95
Mar	0.98
Apr	0.95
May	0.99
Jun	1.05
Jul	1.03
Aug	1.04
Sep	1.03
Oct	0.97
Nov	1.00
Dec	1.10

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.93
Feb	0.95
Mar	0.98
Apr	0.95
May	0.99
Jun	1.05
Jul	1.03
Aug	1.04
Sep	1.03
Oct	0.97
Nov	1.00
Dec	1.10

Historical Data Summary Notes
This facility is under the authority of the City of Claremont, but the City of Hickory provides OM&M.
City purchases water from Conover, who purchases water from Hickory. Therefore compare WW flows to the City Hickory WTP flows.
Assumed 0.53% of withdrawn Hickory WTP water is returned back to lake at the North WWTP, as suggested by historical flow data.
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ID No.

NRN-4

(continued from previous page)

ID No.

NRN-4

PWS ID:

0

(continued from previous page)

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)										
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type										
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted			
2002	0.99	0.70	0.70	0.61	0.60	0.49	0.49	0.53	0.53	0.61	0.79	0.86	0.66	2020	--	--	--	--	--	0.08	--	2020										
2003	0.61	0.79	0.91	1.05	1.11	0.98	0.76	0.88	0.55	0.60	0.67	0.78	0.81	2025	--	--	--	--	--	0.08	--	2025										
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	0.09	--	2035										
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	--	--	--	--	--	0.10	--	2045										
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	--	--	--	--	--	0.10	--	2055										
2007	0.87	0.68	0.82	0.69	0.64	0.60	0.58	0.56	0.61	0.65	0.57	0.60	0.66	2065	--	--	ND	--	--	0.11	--	2065										
2008	0.61	0.67	0.59	0.74	0.65	0.59	0.67	0.72	0.70	0.62	0.60	0.76	0.66	2075	--	--	--	--	--	0.12	--	2075										
2009	0.73	0.61	0.78	0.84	0.75	0.87	0.69	0.78	0.81	0.72	0.89	1.09	0.80	Applied AGR:				See Notes								See Notes						
2010	0.94	0.90	0.80	0.76	0.67	0.61	0.59	0.54	0.60	0.75	0.60	0.78	0.71	Analysis and Projections Notes										Analysis and Projections Notes								
2011	0.73	0.73	0.79	0.66	0.62	0.51	0.60	0.51	0.67	0.67	0.79	0.86	0.68	AGR of 0.70 used for all categories per Catawba County projected AGR.										LWSP forecasting approach is completed for returns.								
2012	-	-	-	-	-	-	-	0.06	0.06	0.07	0.08	0.10	0.03	--																		
2013	0.08	0.07	0.07	0.08	0.08	0.06	0.08	0.07	0.06	0.06	0.07	0.08	0.07	--																		
2014	0.08	0.08	0.08	0.08	0.07	0.07	0.07	-	0.07	0.06	0.07	0.06	0.07	--																		
2015	0.07	0.07	-	-	-	-	-	-	-	-	-	-	0.01	--																		
2016	-	-	-	-	-	-	0.07	0.07	0.07	0.06	0.06	0.06	0.03	--																		
2017	0.07	0.05	0.06	0.07	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	--																		
2018	0.06	0.08	0.07	0.08	0.08	0.07	0.06	0.07	0.07	0.08	0.09	0.10	0.08	--																		
2019	0.09	0.10	0.08	0.08	0.07	0.08	0.06	0.06	0.06	0.06	0.06	0.08	0.07	--																		
2020	0.08	0.09	0.07	0.07	0.09	0.08	0.06	0.08	0.08	0.09	0.09	0.09	0.08	--																		

Data Source: City of Conover; Mike Fox; 3/6/2012

USEPA NPDES DMR online search

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Historical Data Summary Notes											

PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.08
2025	0.08
2035	0.09
2045	0.10
2055	0.10
2065	0.11
2075	0.12

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.29
2025	0.29
2035	0.29
2045	0.30
2055	0.31
2065	0.32
2075	0.32

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.03
Mar	1.06
Apr	1.06
May	1.00
Jun	0.93
Jul	0.89
Aug	0.91
Sep	0.92
Oct	0.94
Nov	1.00
Dec	1.16

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

PROJECTIONS SUMMARY

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.03
Mar	1.06
Apr	1.06
May	1.00
Jun	0.93
Jul	0.89
Aug	0.91
Sep	0.92
Oct	0.94
Nov	1.00
Dec	1.16

ID No.	NRN-5	Category	Public Water/Wastewater Utilities	ID No.	NRN-5	ID No.	NRN-5	PWS ID:	0
Entity	City of Conover	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Southeast WWTP	Sub-basin	Lake Norman						
Contact	Brian Bradshaw	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRM-1	Category	Public Water/Wastewater Utilities	ID No.	NRM-1	ID No.	NRM-1	PWS ID:	01-60-010
Entity	Charlotte Water	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Lee S Dukes WTP	Sub-basin	Mountain Island Lake						
Contact	Alan Gaines	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type							
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2002	0.17	0.16	0.16	0.20	0.24	0.26	0.25	0.23	0.20	0.19	0.17	0.16	0.20	2020	--	--	--	--	--	0.33	--	2020							
2003	0.17	0.16	0.16	0.20	0.24	0.26	0.25	0.23	0.20	0.19	0.17	0.16	0.20	2025	--	--	--	--	--	0.39	--	2025							
2004	0.40	0.47	0.46	0.43	0.55	0.60	0.64	0.60	0.45	0.41	0.36	0.40	0.48	2035	--	--	--	--	--	0.50	--	2035							
2005	0.24	0.25	0.31	0.32	0.42	0.50	0.61	0.66	0.59	0.45	0.29	0.23	0.41	2045	--	--	--	--	--	0.63	--	2045							
2006	0.17	0.19	0.29	0.46	0.44	0.51	0.56	0.53	0.41	0.21	0.20	0.26	0.35	2055	--	--	--	--	--	0.78	--	2055							
2007	0.20	0.22	0.35	0.48	0.49	0.58	0.53	0.63	0.58	0.23	0.22	0.19	0.39	2065	--	--	--	--	--	0.97	--	2065							
2008	0.18	0.16	0.18	0.19	0.24	0.44	0.36	0.35	0.35	0.32	0.22	0.17	0.26	2075	--	--	--	--	--	1.18	--	2075							
2009	0.17	0.17	0.20	0.21	0.39	0.34	0.48	0.45	0.44	0.23	0.25	0.15	0.29	Applied AGR:				See Notes											
2010	0.17	0.16	0.19	0.28	0.31	0.35	0.38	0.45	0.36	0.31	0.20	0.18	0.28	Analysis and Projections Notes															
2011	0.25	0.24	0.28	0.22	0.36	0.43	0.53	0.51	0.35	0.29	0.19	0.18	0.32	Annual Growth Rate 1.51 applied, per Mecklenburg county										LWSP forecasting approach is completed for returns.					
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND																
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2014	0.25	0.19	0.22	0.27	0.41	0.51	0.55	0.52	0.56	0.33	0.20	0.20	0.35	--															
2015	0.18	0.18	0.21	0.32	0.32	0.47	0.46	0.27	0.29	0.27	0.22	0.19	0.28	--															
2016	0.22	0.25	0.25	0.31	0.33	0.46	0.52	0.57	0.56	0.51	0.31	0.19	0.37	--															
2017	0.25	0.24	0.21	0.30	0.39	0.31	0.61	0.33	0.42	0.26	0.18	0.15	0.31	--															
2018	0.16	0.15	0.17	0.27	0.29	0.31	0.43	0.36	0.31	0.31	0.15	0.17	0.26	--															
2019	0.19	0.13	0.14	0.15	0.33	0.32	0.42	0.44	0.41	0.30	0.37	0.33	0.30	--															
2020	0.37	0.31	0.32	0.35	0.39	0.28	0.43	0.39	0.32	0.29	0.23	0.24	0.33																

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012

NC DEQ - DWR Local Water Supply Plans

Ron Hargrove, 2/2/2022, 2014-2020 data)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Historical Data Summary Notes	
2002-03 data on monthly basis not useable, applied annual average with monthly coefficients from NWN-1	
Previous Forecast assumed 1.73% of withdrawn Dukes WTP water is returned back to lake as backwash at the Dukes WTP, as as suggested by historical flow data.	
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2012-2020 data provided by Ron Hargrove	
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.33
2025	0.39
2035	0.50
2045	0.63
2055	0.78
2065	0.97
2075	1.18

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.32
2025	0.38
2035	0.49
2045	0.62
2055	0.77
2065	0.95
2075	1.17

Monthly Coefficients	
Month	Coefficient
Jan	0.69
Feb	0.68
Mar	0.76
Apr	0.92
May	1.14
Jun	1.29
Jul	1.49
Aug	1.40
Sep	1.26
Oct	0.95
Nov	0.73
Dec	0.66

PROJECTIONS SUMMARY

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	0.69
Feb	0.68
Mar	0.76
Apr	0.92
May	1.14
Jun	1.29
Jul	1.49
Aug	1.40
Sep	1.26
Oct	0.95
Nov	0.73
Dec	0.66

ID No.	NRM-2	Category	Public Water/Wastewater Utilities	ID No.	NRM-2	ID No.	NRM-2	PWS ID:	0
Entity	Charlotte Water	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	McDowell Creek WWTP	Sub-basin	Mountain Island Lake						
Contact	Alan Gaines	IBT?	No						
				PROJECTIONS ANALYSIS					LOCAL WATER SUPPLY PLAN

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	4.80	4.74	5.03	4.88	4.63	4.56	4.67	4.66	4.83	5.10	5.25	5.56	4.89
2003	5.01	5.65	6.14	6.88	6.95	6.45	5.95	5.44	5.35	5.25	4.88	4.85	5.73
2004	4.85	5.23	4.48	4.52	4.56	4.32	4.25	4.23	4.69	4.37	4.39	4.52	4.53
2005	4.33	4.47	4.66	4.63	4.57	4.64	4.47	4.47	4.33	4.78	4.54	4.98	4.57
2006	5.01	4.71	4.61	4.75	4.68	4.84	4.84	4.99	5.13	5.01	5.42	5.05	4.92
2007	5.23	5.64	5.48	5.17	5.03	5.07	4.81	4.74	4.87	4.16	4.10	4.29	4.88
2008	4.35	4.33	4.64	4.65	4.59	4.27	4.32	4.83	4.55	4.31	4.36	4.72	4.49
2009	4.63	4.43	5.18	4.66	4.57	4.66	4.34	4.38	4.32	4.26	4.83	4.92	4.60
2010	5.27	5.40	5.04	4.67	4.66	4.61	4.48	4.69	4.36	4.35	4.32	4.41	4.68
2011	4.42	4.63	4.84	4.71	4.64	4.46	4.49	4.58	4.57	4.45	4.74	4.82	4.61
2012	4.70	4.46	4.68	4.38	4.54	4.33	4.38	4.44	4.37	4.17	4.12	4.26	4.40
2013	4.62	4.73	4.90	4.84	4.97	5.25	4.94	4.53	4.30	4.11	4.21	4.73	4.68
2014	3.27	3.47	3.74	3.96	3.13	2.92	2.79	2.69	2.80	2.55	2.55	2.73	3.05
2015	4.67	4.76	4.86	5.14	4.39	4.30	4.12	4.18	4.12	4.54	5.77	5.95	4.73
2016	5.87	5.89	5.00	4.58	4.97	4.53	4.26	4.38	4.50	4.61	4.22	4.45	4.77
2017	5.41	4.68	4.79	5.40	5.25	5.14	4.68	4.79	4.72	4.45	4.29	4.39	4.83
2018	5.00	4.95	5.18	5.04	4.74	4.54	4.41	4.68	5.19	4.96	5.60	6.47	5.06
2019	5.82	5.82	5.55	5.25	4.67	4.46	4.25	4.41	4.09	4.21	4.40	5.26	4.84
2020	5.67	6.10	5.42	5.06	6.05	4.94	4.41	4.49	4.58	4.68	4.90	5.00	5.11

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012
NC DEQ - DWR Local Water Supply Plans

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes												
Assumed 4.28% of total WTP water withdrawn (Dukes and Franklin-Vest WTP's) water is returned back to lake at the McDowell Creek WTP, as suggested by historical flow data.												
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	5.11	--	2020							
2025	--	--	--	--	--	5.72	--	2025							
2035	--	--	--	--	--	6.13	--	2035							
2045	--	--	--	--	--	6.78	--	2045							
2055	--	--	--	--	--	7.26	--	2055							
2065	--	--	--	--	--	7.79	--	2065							
2075	--	--	--	--	--	8.31	--	2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Aligned forecasted values with Wastewater System Master Plan (HDR,2020)								LWSP forecasting approach is completed for returns.							
Values not categorized by user type for returns.															

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)											
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
2002	0.55	0.45	0.60	0.43	0.38	0.38	0.34	0.38	0.39	0.43	0.55	0.65	0.46	2020	--	--	--	--	--	0.58	--	2020											
2003	0.35	0.49	0.68	0.98	1.01	0.87	0.85	1.09	0.97	0.74	0.63	0.58	0.77	2025	--	--	--	--	--	0.59	--	2025											
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	0.63	--	2035											
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	--	--	--	--	--	0.67	--	2045											
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	--	--	--	--	--	0.72	--	2055											
2007	0.67	0.56	0.62	0.52	0.41	0.37	0.37	0.32	0.31	0.34	0.36	0.40	0.44	2065	--	--	--	--	--	0.76	--	2065											
2008	0.40	0.46	0.48	0.43	0.41	0.32	0.35	0.46	0.30	0.39	0.36	0.51	0.41	2075	--	--	--	--	--	0.81	--	2075											
2009	0.48	0.41	0.68	0.54	0.48	0.44	0.33	0.33	0.37	0.42	0.53	0.73	0.48	Applied AGR:								See Notes											
2010	0.68	0.77	0.61	0.46	0.47	0.32	0.29	0.34	0.02	0.31	0.34	0.42	0.42	Analysis and Projections Notes														Analysis and Projections Notes					
2011	0.42	0.46	0.50	0.41	0.35	0.33	0.39	0.44	0.47	0.44	0.56	0.60	0.45	Projected WWTP return is 70.15 % of the projected WTP water use listed in										LWSP forecasting approach is completed for returns.									
2012	0.56	0.52	0.46	0.41	0.54	0.42	0.36	0.43	0.46	0.44	0.41	0.47	0.46	sheet NWY-9.																			
2013	0.28	0.27	0.30	0.30	0.29	0.29	0.37	0.28	0.25	0.23	0.27	0.31	0.29	Method underestimates return, so Gaston County AGR (0.63) is used																			
2014	0.92	0.81	0.73	0.66	0.57	0.43	0.38	0.43	0.46	0.42	0.51	0.51	0.57																				
2015	0.57	0.61	0.53	0.55	0.47	0.47	0.37	0.40	0.47	0.55	0.65	0.80	0.54																				
2016	1.01	0.91	0.67	0.53	0.55	0.44	0.46	0.50	0.38	0.43	0.42	0.43	0.56																				
2017	0.57	0.43	0.47	0.55	0.40	0.41	0.39	0.43	0.42	0.46	0.45	0.34	0.44																				
2018	0.44	0.56	0.69	0.66	0.40	0.54	0.35	0.61	0.53	0.54	1.03	1.00	0.61																				
2019	0.91	0.95	0.91	0.77	0.59	0.56	0.45	0.41	0.41	0.45	0.53	0.65	0.63																				
2020	0.49	0.50	0.52	0.64	0.62	0.52	0.45	0.53	0.56	0.66	0.70	0.71	0.58																				

Data Source: City of Cherryville; Patty Hall; 2/23/2012

NC DEQ - DWR Local Water Supply Plans

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: N/A

Historical Data Summary Notes													
Assumed 70.15% of withdrawn WTP water is returned back to lake as at the WWTP, as suggested by historical flow data.													
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PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	0.58
2025	0.59
2035	0.63
2045	0.67
2055	0.72
2065	0.76
2075	0.81

Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	0.49
2025	0.51
2035	0.55
2045	0.59
2055	0.63
2065	0.68
2075	0.73

Monthly Coefficients	
Month	Coefficient
Jan	1.15
Feb	1.13
Mar	1.17
Apr	1.09
May	0.98
Jun	0.88
Jul	0.80
Aug	0.91
Sep	0.84
Oct	0.90
Nov	1.03
Dec	1.12

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

PROJECTIONS SUMMARY

Monthly Coefficients	
Month	Coefficient
Jan	1.15
Feb	1.13
Mar	1.17
Apr	1.09
May	0.98
Jun	0.88
Jul	0.80
Aug	0.91
Sep	0.84
Oct	0.90
Nov	1.03
Dec	1.12

ID No.	NR17-17	Category	Public Water/Wastewater Utilities	ID No.	NR17-17	ID No.	NR17-17	PWS ID:	0
Entity	Two River Utilities/Gastonia	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Crowders Creek WWTP (formerly City of Gastonia)	Sub-basin	Lake Wylie						
Contact	Kyle Butler	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NR19-19	Category	Public Water/Wastewater Utilities	ID No.	NR19-19	ID No.	NR19-19	PWS ID:	0
Entity	City of Hickory	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Henry Fork WWTP	Sub-basin	Lake Wylie						
Contact	Shawn Pennell	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRV-21	Category	Public Water/Wastewater Utilities	ID No.	NRV-21	ID No.	NRV-21	PWS ID:	0
Entity	City of Lincoln	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Lincoln WWTP	Sub-basin	Lake Wylie						
Contact	Robert Pearson	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)									
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type									
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		
2002	0.21	0.20	0.27	0.23	0.28	0.22	0.29	0.36	0.19	0.25	0.25	0.29	0.25	2020	--	--	--	--	--	0.29	--	2020	--	--	--	--	--	--			
2003	0.23	0.30	0.40	0.53	0.46	0.36	0.34	0.32	0.29	0.25	0.25	0.29	0.33	2025	--	--	--	--	--	0.30	--	2025	--	--	--	--	--	--			
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	0.32	--	2035	--	--	--	--	--	--			
2005	-	-	-	-	-	0.29	0.24	0.23	0.24	0.29	0.29	0.37	0.16	2045	--	--	--	--	--	0.34	--	2045	--	--	--	--	--	--			
2006	0.34	0.30	0.27	0.26	0.27	0.26	0.26	0.31	0.32	0.28	0.34	0.29	0.29	2055	--	--	--	--	--	0.36	--	2055	--	--	--	--	--	--			
2007	0.36	0.31	0.35	0.30	0.27	0.25	0.25	0.23	0.23	0.23	0.22	0.25	0.27	2065	--	--	--	--	--	0.38	--	2065	--	--	--	--	--	--			
2008	0.24	0.25	0.30	0.27	0.25	0.22	0.24	0.26	0.26	0.22	0.22	0.30	0.25	2075	--	--	--	--	--	0.41	--	2075	--	--	--	--	--	--			
2009	0.28	0.24	0.36	0.26	0.27	0.28	0.22	0.22	0.22	0.23	0.32	0.38	0.27	Applied AGR:																	
2010	0.34	0.36	0.32	0.25	0.27	0.23	-	-	-	-	-	-	0.15	Analysis and Projections Notes									Analysis and Projections Notes								
2011	-	-	-	-	-	0.24	-	-	-	-	-	-	0.02	AGR of 0.63 is used for WWTP return per Gaston County projected AGR.									Water return, so LWSP approach is not applicable								
2012	-	-	-	-	-	-	-	0.24	0.25	0.24	0.22	0.24	0.10	--																	
2013	0.30	0.32	0.29	0.33	0.31	0.33	0.38	0.27	0.23	0.21	0.23	0.31	0.29	--																	
2014	0.30	0.30	0.33	0.36	0.23	0.23	0.22	0.25	0.23	0.21	0.24	0.24	0.26	--																	
2015	0.26	0.26	0.26	0.31	0.21	0.19	0.18	0.19	0.19	0.25	0.36	0.44	0.26	--																	
2016	0.31	0.31	0.28	0.32	0.35	0.33	0.30	0.28	0.31	0.29	0.28	0.30	0.30	--																	
2017	0.41	-	-	-	-	0.32	0.31	0.31	0.31	0.28	0.29	0.33	0.21	--																	
2018	0.41	0.37	0.36	0.38	0.34	0.32	0.28	0.28	0.32	0.23	0.29	0.39	0.33	--																	
2019	0.33	0.39	0.31	0.31	0.25	0.28	0.21	0.20	0.18	0.21	0.24	0.34	0.27	--																	
2020	0.34	0.41	0.30	0.31	0.36	0.25	0.23	0.22	0.25	0.24	0.27	0.27	0.29																		

Data Source: EPA Envirofacts Database (pre 2012)
USEPA NPDES DMR web search (2012 - 2020)

Customer Data													Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients		Annual Average Flow		Monthly Coefficients	
Customer Type	2017			2018			2019			2020			Year	Flow (MGD)	Year	Flow	Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III										
Residential		-			-			-			-		2020	0.29	Base Year	0.24	Jan	1.08	2020	--	Jan	1.08
Commercial		-			-			-			-		2025	0.30	2025	0.25	Feb	0.99	2025	--	Feb	0.99
Industrial		-			-			-			-		2035	0.32	2035	0.27	Mar	1.02	2035	--	Mar	1.02
Institutional		-			-			-			-		2045	0.34	2045	0.29	Apr	1.02	2045	--	Apr	1.02
Wholesale		-			-			-			-		2055	0.36	2055	0.31	May	0.96	2055	--	May	0.96
Other		-			-			-			-		2065	0.38	2065	0.33	Jun	1.07	2065	--	Jun	1.07
Unaccounted		-			-			-			-		2075	0.41	2075	0.36	Jul	0.91	2075	--	Jul	0.91
Historical Data Summary Notes																	Aug				Sep	
Historical information is derived from the US EPA NPDES DMR database PCS search engine.																	Oct				Nov	
--																	Nov				Dec	
--																	Dec					
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Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

ID No.	NRY-32	Category	Public Water/Wastewater Utilities - Domestic	ID No.	NRY-32	ID No.	NRY-32	PWS ID:	0
Entity	Carolina Water Service, Inc.	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Queens Harbor WWTP	Sub-basin	Lake Wylie						
Contact	James T. Highley	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)												Projected Flowrates (MGD)								
NRY-322012														Year	Customer Type						Year	Customer Type												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted					
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND	2020								2020												
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025								2025												
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035								2035												
2005	--	--	--	--	--	--	--	--		0.02	0.02	0.02	0.02	2045								2045												
2006	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	2055								2055												
2007	0.03	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	2065								2065												
2008	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	2075								2075												
2009	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	Applied AGR:																				
2010	0.02	0.02	0.02	0.02	0.02	0.03	--	--	--	--	--	--	0.01	Analysis and Projections Notes												Analysis and Projections Notes								
2011	--	--	--	--	--	0.03	--	--	--	--	--	--	0.00	Previous study used permitted capacity of 0.1 MGD. Recommend to not include in this forecast																				
2012	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0.03	0.02																					
2013	0.02	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	--																				
2014	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	--																				
2015	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	--																				
2016	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	--																				
2017	0.02	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.01	0.01	--																				
2018	0.01	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	--																				
2019	0.02	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	--																				
2020	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02																					

Data Source: USEPA NPDES Website

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: <Source>; <Contact Person>; <Date>

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Using Base Year Annual Average Flow	
Year	Flow
Base Year	
2025	
2035	
2045	
2055	
2065	
2075	

Monthly Coefficients	
Month	Coefficient
Jan	1.07
Feb	0.97
Mar	0.99
Apr	1.15
May	1.10
Jun	1.17
Jul	0.91
Aug	0.84
Sep	0.91
Oct	0.92
Nov	0.99
Dec	0.98

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.07
Feb	0.97
Mar	0.99
Apr	1.15
May	1.10
Jun	1.17
Jul	0.91
Aug	0.84
Sep	0.91
Oct	0.92
Nov	0.99
Dec	0.98

Historical Data Summary Notes	
Historical Data from USEPA NPDES website	
Permitted capacity is 0.1 MGD. Current flows well below current capacity.	
Previous study used current capacity. Replaced with historical flows.	
Formula was changed in highlighted cells for years with missing monthly data	
Recommend to not include in this forecast	
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ID No.	NRV-33	Category	Public Water/Wastewater Utilities - Domestic	ID No.	NRV-33	ID No.	NRV-33	PWS ID:	0
Entity	Carolina Water Service, Inc.	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Riverpointe WWTP	Sub-basin	Lake Wylie						
Contact	James T. Highley	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRV-34	Category	Public Water/Wastewater Utilities - Domestic	ID No.	NRV-34	ID No.	NRV-34	PWS ID:	0
Entity	Hideways WWTP	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Hideways WWTP	Sub-basin	Lake Wylie						
Contact	Wendell Smith	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRV-38	Category	Public Water/Wastewater Utilities	ID No.	NRV-38	ID No.	NRV-38	PWS ID:	
Entity	Lincoln County	Type	Return	(continued from previous page)		(continued from previous page)			
Facility	Killian Creek WWTP	Sub-basin	Lake Wylie						
Contact	Chuck King	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

ID No.	NRF-1	Category	Public Water/Wastewater Utilities	ID No.	NRF-1	ID No.	NRF-1	PWS ID:	01-60-010
Entity	Charlotte Water	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Franklin and Vest WTP	Sub-basin	Fishing Creek Reservoir						
Contact	Alan Gaines	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)										Projected Flowrates (MGD)									
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted				
2002	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	2020	--	--	--	--	--	4.45	--	2020											
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	2025	--	--	--	--	--	4.80	--	2025											
2004	0.90	1.58	1.67	1.15	1.29	1.03	0.93	1.26	1.54	0.92	0.71	1.17	1.18	2035	--	--	--	--	--	5.57	--	2035											
2005	2.00	2.75	1.48	1.20	1.60	1.78	1.75	1.96	1.94	1.79	1.46	1.48	1.76	2045	--	--	--	--	--	6.48	--	2045											
2006	1.36	1.63	1.19	1.76	1.99	2.24	2.26	2.17	2.20	2.32	2.32	1.99	1.95	2055	--	--	--	--	--	7.53	--	2055											
2007	1.78	1.20	0.82	1.28	1.52	2.64	2.70	3.11	2.53	2.37	2.48	2.39	2.07	2065	--	--	--	--	--	8.75	--	2065											
2008	2.37	2.51	2.24	2.37	2.90	3.13	2.85	3.21	2.85	3.04	3.01	3.46	2.83	2075	--	--	--	--	--	10.17	--	2075											
2009	3.07	2.73	2.30	2.49	2.43	2.46	3.27	3.00	3.79	3.99	3.60	3.30	3.04	Applied AGR:										See Notes									
2010	3.17	2.99	2.69	2.97	3.26	2.96	2.88	2.70	2.67	2.72	2.60	2.59	2.85	Analysis and Projections Notes										Analysis and Projections Notes									
2011	2.67	2.49	3.67	3.56	4.47	3.70	3.38	3.43	3.70	3.83	3.15	3.13	3.44	Applied 1.51% AGR, as per Mecklenburg County AGR										Not applicable for return calculations									
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND																				
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND																				
2014	4.00	3.31	3.10	2.99	3.45	4.15	4.41	4.14	3.77	3.77	3.58	3.37	3.67																				
2015	3.34	3.53	3.59	3.84	3.87	3.98	4.07	3.34	3.46	3.16	3.29	3.88	3.61																				
2016	3.83	3.51	3.98	3.75	3.86	4.07	4.26	4.07	3.79	3.52	3.49	3.52	3.81																				
2017	3.78	3.05	3.21	3.47	4.17	4.63	4.68	4.09	4.52	4.08	3.72	3.70	3.93																				
2018	3.72	3.70	3.20	2.86	3.21	3.30	3.39	3.31	3.60	3.10	2.67	2.97	3.25																				
2019	2.79	2.98	2.87	3.23	3.49	3.47	3.35	3.41	3.68	4.08	3.28	2.79	3.29																				
2020	3.06	3.75	4.23	3.45	4.31	4.57	4.70	5.21	5.36	5.10	4.74	4.86	4.45																				

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012
Ron Hargrove, 2/2/2022, 2014-2020 data

Customer Data													Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients		Annual Average Flow		Monthly Coefficients	
Customer Type	2017			2018			2019			2020			Year	Flow (MGD)	Year	Flow	Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III										
Residential		-			-			-			-		2020	4.45	Base Year	3.25	Jan	0.93	2020	--	Jan	0.93
Commercial		-			-			-			-		2025	4.80	2025	3.59	Feb	0.93	2025	--	Feb	0.93
Industrial		-			-			-			-		2035	5.57	2035	4.37	Mar	0.90	2035	--	Mar	0.90
Institutional		-			-			-			-		2045	6.48	2045	5.27	Apr	0.90	2045	--	Apr	0.90
Wholesale		-			-			-			-		2055	7.53	2055	6.32	May	1.01	2055	--	May	1.01
Other		-			-			-			-		2065	8.75	2065	7.54	Jun	1.06	2065	--	Jun	1.06
Unaccounted		-			-			-			-		2075	10.17	2075	8.96	Jul	1.08	2075	--	Jul	1.08
																	Aug	1.07			Aug	1.07
																	Sep	1.09			Sep	1.09
																	Oct	1.06			Oct	1.06
																	Nov	0.98			Nov	0.98
																	Dec	0.99			Dec	0.99

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes												

ID No.	NRF-2	Category	Public Water/Wastewater Utilities	ID No.	NRF-2	ID No.	NRF-2	PWS ID:	01-60-010
Entity	Charlotte Water	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Irwin Creek WWTP	Sub-basin	Fishing Creek Reservoir						
Contact	Alan Gaines	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	11.70	11.08	11.74	11.15	9.42	9.11	9.62	9.39	10.59	11.33	10.44	10.89	10.54
2003	9.45	10.89	12.45	12.68	12.70	11.83	10.78	11.74	9.94	9.59	9.40	9.81	10.94
2004	9.18	10.26	9.81	9.90	9.52	10.53	9.90	10.05	11.08	9.62	9.64	9.78	9.93
2005	9.81	10.15	10.55	10.46	9.65	9.96	9.37	10.13	9.13	9.81	8.97	10.19	9.85
2006	9.81	8.88	8.66	9.19	8.40	9.30	9.33	10.25	10.61	9.37	11.30	9.36	9.54
2007	10.45	10.57	10.29	10.17	8.87	8.60	8.23	7.97	8.50	7.65	7.47	7.26	8.82
2008	7.88	8.10	8.88	8.31	7.47	7.80	8.05	8.71	8.62	7.73	7.42	8.24	8.10
2009	8.30	7.82	9.71	8.72	8.88	9.08	8.24	7.98	7.75	7.70	9.19	10.28	8.64
2010	10.02	11.14	9.59	8.40	7.94	8.14	7.68	8.27	7.39	7.25	6.86	7.08	8.30
2011	7.33	8.06	8.28	7.87	7.87	7.69	7.33	8.09	7.92	7.59	7.65	8.15	7.82
2012	7.82	7.42	7.78	7.28	7.55	7.20	7.29	7.38	7.26	6.94	6.86	7.09	7.32
2013	8.61	8.81	9.13	9.03	9.25	9.78	9.20	8.44	8.02	7.65	7.84	8.82	8.71
2014	5.62	5.97	6.43	6.81	5.38	5.03	4.79	4.62	4.81	4.39	4.39	4.69	5.24
2015	8.12	8.27	8.45	8.95	7.63	7.49	7.16	7.27	7.16	7.90	10.03	10.36	8.23
2016	8.98	8.99	7.63	6.99	7.59	6.92	6.51	6.69	6.88	7.05	6.44	6.80	7.29
2017	8.63	7.46	7.65	8.62	8.38	8.20	7.48	7.64	7.53	7.11	6.85	7.01	7.71
2018	8.64	8.56	8.95	8.72	8.20	7.84	7.62	8.09	8.98	8.57	9.68	11.19	8.75
2019	14.57	14.57	13.91	13.14	11.70	11.18	10.65	11.05	10.24	10.55	11.03	13.17	12.13
2020	12.21	13.14	11.69	10.90	13.04	10.64	9.51	9.68	9.87	10.10	10.57	10.77	11.00

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012
NC DEQ - DWR Local Water Supply Plans (2012-2020)

Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	11.0		2020							
2025	--	--	--	--	--	11.7		2025							
2035	--	--	--	--	--	14.4		2035							
2045	--	--	--	--	--	18.2		2045							
2055	--	--	--	--	--	21.4		2055							
2065	--	--	--	--	--	24.2		2065							
2075	--	--	--	--	--	27.5		2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Forecasted values aligned based on Wastewater System Master Plan (HDR, 2020) values								Not applicable for return calculations							

ID No.	NRF-3	Category	Public Water/Wastewater Utilities	ID No.	NRF-3	ID No.	NRF-3	PWS ID:	01-60-010
Entity	Charlotte Water	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Sugar Creek WWTP	Sub-basin	Fishing Creek Reservoir						
Contact	Alan Gaines	IBT?	No						
				PROJECTIONS ANALYSIS			LOCAL WATER SUPPLY PLAN		

Historical Data Summary													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	11.77	11.39	11.82	12.59	12.66	12.91	12.80	12.19	12.68	13.56	13.86	14.48	12.73
2003	13.58	13.89	15.94	15.92	16.76	15.93	14.03	13.73	13.90	13.25	13.06	13.29	14.44
2004	13.47	13.29	11.49	13.12	13.17	13.66	13.66	13.92	14.14	13.06	13.13	13.08	13.26
2005	13.12	12.02	13.52	13.01	12.85	12.90	12.76	11.95	10.06	9.70	11.47	12.80	12.18
2006	12.79	9.82	12.65	13.10	12.99	13.53	13.19	13.79	13.48	13.44	15.05	13.73	13.15
2007	13.87	14.96	13.39	13.50	12.71	13.23	12.32	12.23	12.53	12.32	12.77	11.81	12.95
2008	12.54	10.39	12.46	12.22	11.13	10.81	11.61	13.62	13.11	12.82	12.69	13.28	12.23
2009	11.98	9.78	13.03	12.57	12.91	12.87	12.95	12.95	12.43	12.82	13.36	13.86	12.65
2010	13.53	14.30	11.73	11.74	11.06	12.95	13.29	13.19	12.48	12.15	12.48	11.83	12.55
2011	10.10	10.50	12.33	11.96	11.87	11.84	11.94	12.00	12.02	11.81	11.71	11.90	11.67
2012	12.36	11.74	12.30	11.52	11.94	11.39	11.52	11.68	11.49	10.98	10.85	11.21	11.58
2013	10.76	11.02	11.42	11.29	11.58	12.23	11.50	10.55	10.03	9.57	9.81	11.03	10.90
2014	7.64	8.12	8.75	9.26	7.32	6.84	6.52	6.28	6.55	5.98	5.98	6.38	7.13
2015	11.30	11.51	11.75	12.45	10.61	10.41	9.96	10.11	9.96	10.98	13.95	14.41	11.45
2016	13.71	13.74	11.66	10.68	11.60	10.57	9.95	10.22	10.50	10.76	9.84	10.39	11.13
2017	12.49	10.80	11.07	12.47	12.12	11.87	10.82	11.06	10.90	10.29	9.92	10.14	11.17
2018	12.46	12.34	12.90	12.57	11.81	11.30	10.98	11.66	12.94	12.35	13.95	16.12	12.62
2019	12.21	12.21	11.65	11.01	9.80	9.37	8.93	9.26	8.58	8.84	9.25	11.04	10.17
2020	17.41	18.73	16.66	15.53	18.59	15.17	13.56	13.80	14.06	14.39	15.06	15.36	15.68

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012
NC DEQ - DWR Local Water Supply Plans (2012-2020)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes	
Assumed 11.53% of total WTP water withdrawn (Dukes and Franklin-Vest WTP's) water is returned back to lake at the Sugar Creek WTP, as suggested by historical flow data.	
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Sugar Creek WWTP diverts flows to McAlpine WWTP. In 2020, they reduced their diversions, hence sharp increase in flow	
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Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	15.68	--	2020							
2025	--	--	--	--	--	15.60	--	2025							
2035	--	--	--	--	--	20.60	--	2035							
2045	--	--	--	--	--	25.30	--	2045							
2055	--	--	--	--	--	30.33	--	2055							
2065	--	--	--	--	--	35.22	--	2065							
2075	--	--	--	--	--	40.10	--	2075							
Applied AGR:								See Notes							
Analysis and Projections Notes								Analysis and Projections Notes							
Significant jump in historical values from 2019 to 2020 due to changes in flow diversions.								Not applicable for return calculations							
Flows align with Wastewater System Master Plan Forecast (HDR, 2020)															
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	15.68
2025	15.60
2035	20.60
2045	25.30
2055	30.33
2065	35.22
2075	40.10

Using Base Year Annual Average Flow	
Year	Flow
Base Year	11.80
2025	11.72
2035	16.72
2045	21.42
2055	26.45
2065	31.34
2075	36.22

Monthly Coefficients	
Month	Coefficient
Jan	1.03
Feb	1.00
Mar	1.03
Apr	1.03
May	1.02
Jun	1.00
Jul	0.97
Aug	0.98
Sep	0.97
Oct	0.95
Nov	0.99
Dec	1.03

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

PROJECTIONS SUMMARY

Monthly Coefficients	
Month	Coefficient
Jan	1.03
Feb	1.00
Mar	1.03
Apr	1.03
May	1.02
Jun	1.00
Jul	0.97
Aug	0.98
Sep	0.97
Oct	0.95
Nov	0.99
Dec	1.03

ID No.	NRF-4	Category	Public Water/Wastewater Utilities	ID No.	NRF-4	ID No.	NRF-4	PWS ID:	01-60-010
Entity	Charlotte Water	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	McAlpine Creek WWTP	Sub-basin	Fishing Creek Reservoir						
Contact	Alan Gaines	IBT?	No						
				PROJECTIONS ANALYSIS				LOCAL WATER SUPPLY PLAN	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)									
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type									
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	--	--	--	--	--	48.21	--	2020									
2002	37.93	38.10	41.97	39.85	39.08	38.95	39.67	39.65	40.94	41.58	43.00	46.35	40.61	2025	--	--	--	--	--	49.18	--	2025									
2003	40.21	49.07	57.37	62.85	62.84	63.35	55.48	53.21	42.16	40.42	38.53	38.62	50.34	2035	--	--	--	--	--	57.64	--	2035									
2004	39.61	47.71	51.75	43.40	43.93	46.34	44.31	42.99	50.80	48.76	48.48	48.60	46.37	2045	--	--	--	--	--	65.91	--	2045									
2005	48.31	51.32	53.84	52.76	46.34	49.03	46.96	47.91	43.93	48.26	44.23	52.08	48.74	2055	--	--	--	--	--	73.17	--	2055									
2006	50.17	46.69	45.16	44.77	44.14	45.42	44.26	47.48	49.54	45.55	55.23	48.20	47.21	2065	--	--	--	--	--	80.82	--	2065									
2007	51.94	55.96	52.26	48.37	43.84	46.67	44.52	43.97	43.47	42.13	41.57	41.68	46.30	2075	--	--	--	--	--	88.40	--	2075									
2008	45.67	49.92	51.77	48.91	46.71	45.67	46.20	47.35	47.51	44.16	43.66	48.41	47.15	Applied AGR:						See Notes						See Notes					
2009	50.15	46.96	54.37	47.21	49.38	48.07	42.57	42.37	40.91	41.32	48.76	54.57	47.23	Analysis and Projections Notes																	
2010	54.84	59.24	53.86	47.07	45.88	48.12	43.65	44.01	40.89	40.42	39.96	42.13	46.60																		
2011	44.03	45.80	48.09	46.65	44.57	42.81	41.45	44.65	44.04	43.08	44.39	45.09	44.54	Forecast values align with Wastewater Supply Master Plan (HDR,2020).						Not applicable for return calculations											
2012	44.48	42.24	44.25	41.43	42.95	40.96	41.46	42.01	41.32	39.48	39.03	40.35	41.67																		
2013	43.99	45.04	46.66	46.14	47.31	49.98	47.01	43.12	40.99	39.12	40.10	45.09	44.54																		
2014	32.39	34.41	37.08	39.28	31.03	29.01	27.65	26.64	27.77	25.33	25.33	27.05	30.21																		
2015	47.14	48.03	49.04	51.95	44.29	43.46	41.56	42.20	41.56	45.84	58.24	60.14	47.77	General Notes:																	
2016	54.59	54.70	46.41	42.51	46.18	42.10	39.59	40.67	41.82	42.86	39.18	41.36	44.31	McAlpine WWTP is assumed to receive City of Belmont's wastewater flow (projected starting at																	
2017	47.88	41.42	42.44	47.83	46.48	45.51	41.49	42.40	41.77	39.45	38.03	38.88	42.80	1.99 MGD in 2025).																	
2018	47.62	47.19	49.30	48.04	45.16	43.20	41.98	44.57	49.47	47.22	53.33	61.64	48.23	Forecast also include Union County flow(starting at 2.16 MGD in 2020)																	
2019	55.78	55.77	53.24	50.31	44.78	42.81	40.77	42.29	39.19	40.38	42.24	50.41	46.45																		
2020	53.51	57.56	51.20	47.74	57.13	46.62	41.68	42.42	43.23	44.23	46.30	47.20	48.21																		

Data Source: Charlotte Water; Maeneen Klein; 1/30/2012
NC DEQ - DWR Local Water Supply Plans (2012-2020)

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Historical Data Summary Notes												
Assumed 41.9% of total WTP water withdrawn (Dukes and Franklin-Vest WTP's) water is returned back to lake at the McAlpine Creek WTP, as suggested by historical flow data.												
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PROJECTIONS SUMMARY

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	48.2
2025	49.2
2035	57.6
2045	65.9
2055	73.2
2065	80.8
2075	88.4

Using Base Year Annual Average Flow	
Year	Flow
Base Year	44.9
2025	45.9
2035	54.3
2045	62.6
2055	69.8
2065	77.5
2075	85.1

Monthly Coefficients	
Month	Coefficient
Jan	1.04
Feb	1.07
Mar	1.08
Apr	1.04
May	1.01
Jun	1.00
Jul	0.95
Aug	0.95
Sep	0.94
Oct	0.93
Nov	0.97
Dec	1.02

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.04
Feb	1.07
Mar	1.08
Apr	1.04
May	1.01
Jun	1.00
Jul	0.95
Aug	0.95
Sep	0.94
Oct	0.93
Nov	0.97
Dec	1.02

ID No.	NRF-5	Category	Public Water/Wastewater Utilities	ID No.	NRF-5	ID No.	NRF-5	PWS ID:	
Entity	Union County Public Works Department	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Twelve Mile Creek WWTP	Sub-basin	Fishing Creek Reservoir						
Contact	Aubrey Lofton	IBT?	No						

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.14	1.05	1.16	1.08	1.05	0.95	0.90	0.89	0.87	0.96	1.51	1.26	1.07
2003	1.38	1.84	2.08	2.01	1.87	1.74	1.60	1.18	1.41	1.42	1.39	1.50	1.62
2004	1.49	2.04	2.05	1.75	1.68	1.71	1.67	1.93	2.16	2.01	2.02	2.11	1.88
2005	2.06	2.31	2.47	2.38	2.09	2.25	2.25	-	-	-	-	2.06	1.49
2006	2.56	2.10	2.06	1.95	2.01	2.20	1.97	2.11	2.48	2.44	2.98	2.73	2.30
2007	3.42	3.26	3.03	2.90	2.76	2.57	2.52	2.42	2.53	2.40	2.40	2.68	2.74
2008	3.23	3.55	3.70	3.61	3.13	2.96	3.01	3.24	3.28	3.01	3.35	3.72	3.31
2009	3.65	3.49	4.48	3.68	3.45	3.30	2.93	2.95	2.94	3.07	3.94	4.74	3.55
2010	4.48	4.76	4.14	3.35	3.39	4.10	3.14	3.24	3.05	3.05	3.03	3.27	3.58
2011	3.37	3.57	3.99	3.81	3.53	3.29	3.13	3.68	3.46	3.69	3.53	3.69	3.56
2012	4.06	3.72	3.82	3.58	3.86	3.36	3.42	3.58	3.48	3.42	3.22	3.02	3.55
2013	3.15	3.32	3.35	3.31	3.58	3.53	3.57	3.24	2.98	2.98	3.08	3.40	3.29
2014	3.53	3.84	3.84	3.76	3.21	3.02	3.20	-	3.37	3.04	3.51	4.21	3.20
2015	4.60	4.47	4.24	3.88	3.59	3.65	3.27	3.49	3.15	4.38	5.35	5.21	4.11
2016	4.31	4.28	3.14	4.01	4.53	3.95	3.74	3.85	3.91	4.01	3.67	3.18	3.88
2017	4.32	3.56	-	-	-	4.18	3.78	3.56	3.50	3.50	3.29	3.58	2.77
2018	3.74	4.22	4.07	3.96	3.98	3.68	3.27	3.21	3.73	3.59	4.50	5.34	3.94
2019	5.04	4.40	4.36	4.21	3.78	3.76	3.45	3.73	3.49	3.75	3.97	4.55	4.04
2020	4.72	5.87	4.90	4.98	5.89	5.16	4.75	5.00	5.56	5.84	5.83	6.25	5.39

Data Source: Union County; Scott Huneycutt; 2/11/2012
USEPA NPDES DMR online search (2012-2020)

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: N/A

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	5.39
2025	5.95
2035	7.26
2045	8.85
2055	10.79
2065	13.15
2075	16.03

Using Base Year Annual Average Flow	
Year	Flow
Base Year	3.55
2025	4.11
2035	5.41
2045	7.00
2055	8.94
2065	11.30
2075	14.18

Monthly Coefficients	
Month	Coefficient
Jan	1.08
Feb	1.11
Mar	1.03
Apr	0.98
May	0.97
Jun	1.00
Jul	0.94
Aug	0.87
Sep	0.93
Oct	0.95
Nov	1.02
Dec	1.12

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.08
Feb	1.11
Mar	1.03
Apr	0.98
May	0.97
Jun	1.00
Jul	0.94
Aug	0.87
Sep	0.93
Oct	0.95
Nov	1.02
Dec	1.12

Historical Data Summary Notes
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2020 LWSP Notes:
Service area is divided between Catawba River (59%) and Rocky River (41%). Twelve Mile Creek WWTP received 82% of the return flow (5.39 MGD/ total ADF from WW permits)
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ID No.	NRF-6	Category	Public Water/Wastewater Utilities - Domestic
Entity	Carolina Water Service, Inc.	Type	Return
Facility	Forest Ridge WWTP	Sub-basin	Fishing Creek Reservoir
Contact	Bruce T Haas	IBT?	No

ID No. NRF-6
(continued from previous page)

ID No. NRF-6 PWS ID: _____
(continued from previous page)

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

[illegible]

Data Source: USEPA NPDES Website

PROJECTIONS SUMMARY

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: <Source>; <Contact Person>; <Date>

Using 2020 Data

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	---
2025	---
2035	---
2045	---
2055	---
2065	---
2075	---

Using Base Year

Using Base Year Annual Average Flow	
Year	Flow
Base Year	---
2025	---
2035	---
2045	---
2055	---
2065	---
2075	---

Monthly Coefficients

Monthly Coefficients	
Month	Coefficient
Jan	1.08
Feb	1.05
Mar	1.08
Apr	1.00
May	1.02
Jun	1.17
Jul	0.74
Aug	0.96
Sep	0.92
Oct	0.93
Nov	0.98
Dec	1.06

Annual Average Flow

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients

Monthly Coefficients	
Month	Coefficient
Jan	1.08
Feb	1.05
Mar	1.08
Apr	1.00
May	1.02
Jun	1.17
Jul	0.74
Aug	0.96
Sep	0.92
Oct	0.93
Nov	0.98
Dec	1.06

Historical Data Summary Notes

Historical Data from USEPA NPDES website
Permitted capacity is 0.15 MGD.
Previous study used current capacity. Replaced with historical flows.
Formula was changed in highlighted cells for years with missing monthly data
No longer in operation (GIS Status: Terminated)
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ID No.	SRF-7	Category	Public Water/Wastewater Utilities
Entity	Lancaster County	Type	Return
Facility	Indianland WWTP	Sub-basin	Fishing Creek Reservoir
Contact	Brad Bucy	IBT?	No

ID No.	SRF-7	ID No.	SRF-7	PWS ID:	
(continued from previous page)		(continued from previous page)			

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.24	0.15	0.21	0.21	0.19	0.20	0.24	0.25	0.28	0.26	0.27	0.24	0.23
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.09	0.11	0.11	0.09	0.09	0.09
2005	0.10	0.12	0.13	0.13	0.14	0.15	0.16	-	-	-	-	0.10	0.09
2006	0.17	0.17	0.18	0.22	0.22	0.23	0.23	0.26	0.26	0.23	0.25	0.21	0.22
2007	0.21	0.18	0.33	0.34	0.32	0.31	0.32	0.36	0.36	0.32	0.33	0.34	0.31
2008	0.42	0.42	0.38	0.34	0.39	0.31	0.43	0.45	0.47	0.46	0.48	0.49	0.42
2009	0.48	0.52	0.57	0.49	0.51	0.50	0.47	0.48	0.49	0.53	0.60	0.64	0.52
2010	0.64	0.73	0.61	0.56	0.53	0.60	0.57	0.60	0.61	0.56	0.57	0.56	0.59
2011	0.53	0.53	0.61	0.61	0.61	0.63	0.59	0.74	0.73	0.74	0.72	0.74	0.65
2012	0.59	0.52	0.54	0.52	0.59	0.56	0.57	0.63	0.65	0.62	0.67	0.66	0.59
2013	0.70	0.68	0.67	0.68	0.66	0.69	0.80	0.72	0.67	0.64	0.66	0.77	0.70
2014	0.83	0.84	0.94	0.93	0.80	0.80	0.93	0.78	0.82	0.79	0.80	0.85	0.84
2015	0.90	0.90	0.93	1.01	0.92	0.98	0.90	0.97	0.93	0.97	1.32	1.27	1.00
2016	1.10	1.06	1.01	0.99	1.09	0.97	1.04	1.04	1.03	1.10	1.05	1.07	1.05
2017	1.17	1.10	1.11	1.25	1.26	1.21	1.16	1.18	1.13	1.10	1.11	1.15	1.16
2018	1.18	1.20	1.44	1.24	1.27	1.18	1.18	1.03	1.84	1.92	2.07	1.75	1.44
2019	1.65	1.65	1.63	1.61	1.60	1.60	1.58	1.66	1.57	1.56	1.65	1.80	1.63
2020	1.82	1.93	1.82	1.88	2.17	1.85	1.82	1.90	1.92	1.97	2.00	1.98	1.92

Data Source: USEPA NPDES DMR Online data search (2012-2014)

Lancaster County; Brad Bucy, 3/1/2022 (Data range 2015-2020,

Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Year	Customer Type							Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	1.92	--	2020							
2025	--	--	--	--	--	2.34	--	2025							
2035	--	--	--	--	--	3.46	--	2035							
2045	--	--	--	--	--	5.12	--	2045							
2055	--	--	--	--	--	6.29	--	2055							
2065	--	--	--	--	--	7.73	--	2065							
2075	--	--	--	--	--	9.49	--	2075							

Applied AGR:

See Notes

Analysis and Projections Notes	Analysis and Projections Notes
	SC entity so NC LWSP forecast is not applicable
Planning efforts completed by the Lancaster County suggest larger withdrawals. Staggered AGR applied	
2025-2045: 4% AGR	
2055-2075: 2.08% per Lancaster County	

PROJECTIONS SUMMARY

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: <Source>; <Contact Person>; <Date>

Year	Flow (MGD)
2020	1.92
2025	2.34
2035	3.46
2045	5.12
2055	6.29
2065	7.73
2075	9.49

Year	Flow
Base Year	0.87
2025	1.29
2035	2.41
2045	4.07
2055	5.24
2065	6.68
2075	8.44

Monthly Coefficients	
Month	Coefficient
Jan	0.95
Feb	0.95
Mar	0.98
Apr	0.97
May	0.99
Jun	0.96
Jul	0.97
Aug	0.98
Sep	1.03
Oct	1.03
Nov	1.09
Dec	1.09

Annual Average Flow	
Year	Flow (MGD)
2020	---
2025	---
2035	---
2045	---
2055	---
2065	---
2075	---

Monthly Coefficients	
Month	Coefficient
Jan	0.95
Feb	0.95
Mar	0.98
Apr	0.97
May	0.99
Jun	0.96
Jul	0.97
Aug	0.98
Sep	1.03
Oct	1.03
Nov	1.09
Dec	1.09

Historical Data Summary Notes

USEPA NPDES records don't provide monthly averages in late 2020

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HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type							Year	Customer Type						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2002													--	2020	--	--	--	--	--	1.02	--	2020	--	--	--	--	--	--	--
2003													--	2025	--	--	--	--	--	1.12	--	2025	--	--	--	--	--	--	--
2004													--	2035	--	--	--	--	--	1.37	--	2035	--	--	--	--	--	--	--
2005													--	2045	--	--	--	--	--	1.68	--	2045	--	--	--	--	--	--	--
2006													--	2055	--	--	--	--	--	2.05	--	2055	--	--	--	--	--	--	--
2007													--	2065	--	--	--	--	--	2.51	--	2065	--	--	--	--	--	--	--
2008													--	2075	--	--	--	--	--	3.07	--	2075	--	--	--	--	--	--	--
2009													--	Applied AGR:	See notes	See notes	See notes	See notes	See notes	See notes	See notes	LWSP Forecast is not applicable for SC entity.							
2010													--	Analysis and Projections Notes							Analysis and Projections Notes								
2011													--	Flow split between Union and Lancaster County based on water demand percentages. Similar methodology applied on SWF-6							LWSP Forecast is not applicable for SC entity.								
2012													--	UC: 2021-2060 AGR (2%) based on 2013 UC Comprehensive Master Plan Report (reported in 2020															
2013													--	LWSP) and assumed to be held consistent through the planning horizon.															
2014													--																
2015	0.74	0.83	0.75	0.62	0.74	0.94	1.29	0.93	1.17	0.99	1.17	0.87	0.92	LC AGRs based on County AGR: 2.08															
2016	0.79	0.72	0.70	0.75	0.84	0.94	1.11	0.74	0.75	0.74	0.90	0.75	0.81																
2017	1.11	0.87	0.71	0.75	0.82	1.02	1.28	1.58	1.64	1.60	1.38	1.23	1.17																
2018	1.48	1.21	1.24	1.30	1.34	1.57	1.47	1.44	1.45	1.39	1.40	1.27	1.38																
2019	0.85	0.93	0.86	0.97	1.08	1.22	1.27	0.91	1.07	0.95	1.00	1.07	1.02																
2020	0.85	0.93	0.86	0.97	1.08	1.22	1.27	0.91	1.07	0.95	1.00	1.07	1.02																

Data Source: Lancaster County, Brad Bucy, 3/1/2022

PROJECTIONS SUMMARY

PROJECTIONS SUMMARY

Customer Data													Using 2020 Data Annual Average Flow		Using Base Year Annual Average Flow		Monthly Coefficients		Annual Average Flow		Monthly Coefficients	
Customer Type	2017			2018			2019			2020			Year	Flow (MGD)	Year	Flow	Month	Coefficient	Year	Flow (MGD)	Month	Coefficient
	I	II	III	I	II	III	I	II	III	I	II	III										
Residential													2020	1.02	Base Year	1.05	Jan	0.92	2020	--	Jan	0.92
Commercial													2025	1.12	2025	1.16	Feb	0.87	2025	--	Feb	0.87
Industrial													2035	1.37	2035	1.41	Mar	0.81	2035	--	Mar	0.81
Institutional													2045	1.68	2045	1.72	Apr	0.85	2045	--	Apr	0.85
Wholesale													2055	2.05	2055	2.09	May	0.93	2055	--	May	0.93
Other													2065	2.51	2065	2.55	Jun	1.09	2065	--	Jun	1.09
Unaccounted													2075	3.07	2075	3.11	Jul	1.22	2075	--	Jul	1.22
Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)																	Aug				Aug	
Data Source: <Source>; <Contact Person>; <Date>																	Sep				Sep	
																	Oct				Oct	
																	Nov				Nov	
																	Dec				Dec	

ID No.	SRF-10	Category	Public Water/Wastewater Utilities - Domestic
Entity	Foxwood Sewer District	Type	Return
Facility	Foxwood Sewer District	Sub-basin	Fishing Creek Reservoir
Contact	Bruce T Haas	IBT?	No

ID No. SRF-10
(continued from previous page)

ID No. SRF-10
(continued from previous page)

PWS ID:

PROJECTIONS ANALYSIS

LOCAL WATER SUPPLY PLAN

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)														
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	
2002	0.05	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
2003	0.04	0.05	0.06	0.04	0.08	0.06	0.02	0.09	0.05	0.08	0.02	0.02	0.05	
2004	0.03	0.07	0.05	0.04	0.03	0.06	0.03	0.05	0.04	0.04	0.04	0.06	0.04	
2005	0.03	0.04	0.05	0.06	0.05	0.04	0.04	0.06	0.04	--	0.05	0.07	0.04	
2006	0.09	0.05	0.04	0.04	0.04	0.04	0.04	0.05	0.08	0.04	0.07	0.04	0.05	
2007	0.06	0.06	0.06	0.04	0.03	0.03	0.03	0.04	0.03	0.02	0.02	0.05	0.04	
2008	0.04	0.04	0.04	0.03	0.02	0.01	0.03	0.04	0.03	0.02	0.03	0.06	0.03	
2009	0.05	0.04	0.08	0.03	0.04	0.03	0.02	0.02	0.03	0.04	0.01	0.08	0.04	
2010	0.05	0.07	0.03	0.02	0.04	0.04	0.01	0.02	0.03	0.02	0.02	0.02	0.03	
2011	0.02	0.02	0.04	0.03	0.01	0.02	0.02	0.04	0.04	0.03	0.03	0.04	0.03	
2012	0.04	0.03	0.02	0.02	0.03	0.02	0.02	0.05	0.04	0.02	0.02	0.03	0.03	
2013	0.02	0.03	0.02	0.03	0.03	0.03	0.04	0.04	0.02	0.01	0.02	0.04	0.03	
2014	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.01	0.03	0.03	0.03	
2015	0.03	0.03	0.02	0.04	0.01	0.02	0.01	0.21	0.03	0.04	0.06	0.07	0.05	
2016	0.05	0.04	0.02	0.01	0.04	0.02	0.01	0.02	0.03	0.03	0.01	0.03	0.03	
2017	0.06	0.02	0.03	0.05	0.04	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.03	
2018	0.05	0.03	0.03	0.02	0.03	0.02	0.04	0.04	0.03	0.03	0.03	0.06	0.04	
2019	0.05	0.10	0.06	0.04	0.02	0.02	0.01	0.02	0.02	0.01	0.05	0.05	0.04	
2020	0.04	0.05	0.04	0.02	0.05	0.03	0.01	0.03	0.02	0.03	0.05	0.02	0.03	

Data Source: USEPA NPDES Website

Projected Flowrates (MGD) (Using 2020 Data)

Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	--	--	--	--	--	0.03	--
2025	--	--	--	--	--	0.03	--
2035	--	--	--	--	--	0.04	--
2045	--	--	--	--	--	0.04	--
2055	--	--	--	--	--	0.04	--
2065	--	--	--	--	--	0.04	--
2075	--	--	--	--	--	0.05	--

Applied AGR:

Projected Flowrates (MGD)

Year	Customer Type						
	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020							
2025							
2035							
2045							
2055							
2065							
2075							

Analysis and Projections Notes

Used County AGR of 1.63%

Analysis and Projections Notes

SC entity so NC LWSP forecast is not applicable

PROJECTIONS SUMMARY

Customer Type	Customer Data											
	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)

Data Source: <Source>; <Contact Person>; <Date>

Using 2020 Data

Annual Average Flow	
Year	Flow (MGD)
2020	0.03
2025	0.03
2035	0.04
2045	0.04
2055	0.04
2065	0.04
2075	0.05

Using Base Year

Annual Average Flow	
Year	Flow
Base Year	0.03
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.05
2075	0.05

Monthly Coefficients

Month	Coefficient
Jan	1.20
Feb	1.24
Mar	1.12
Apr	0.91
May	0.93
Jun	0.84
Jul	0.69
Aug	1.29
Sep	0.89
Oct	0.79
Nov	0.90
Dec	1.20

Annual Average Flow

Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients

Month	Coefficient
Jan	1.20
Feb	1.24
Mar	1.12
Apr	0.91
May	0.93
Jun	0.84
Jul	0.69
Aug	1.29
Sep	0.89
Oct	0.79
Nov	0.90
Dec	1.20

Historical Data Summary Notes

Historical data from USEPA NPDES Website

ID No.	SRG-2	Category	Public Water/Wastewater Utilities	ID No.	SRG-2	ID No.	SRG-2	PWS ID:	
Entity	York	Type	Return	(continued from previous page)			(continued from previous page)		
Facility	Fishing Creek WWTP	Sub-basin	Great Falls Reservoir						
Contact	0	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)									
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type									
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted		
2002	0.90	0.80	0.95	0.80	0.90	0.80	0.80	0.80	0.90	1.00	1.10	1.30	0.92	2020	--	--	--	--	--	0.89	--	2020									
2003	0.90	1.18	1.59	1.70	1.71	1.20	1.10	0.98	0.90	0.90	0.80	0.80	1.15	2025	--	--	--	--	--	0.97	--	2025									
2004	0.80	1.20	1.00	1.04	1.00	1.30	1.30	1.45	1.90	1.32	1.26	1.40	1.25	2035	--	--	--	--	--	1.14	--	2035									
2005	1.60	1.60	2.00	1.90	1.40	1.40	1.20	1.20	1.10	1.20	1.20	1.50	1.44	2045	--	--	--	--	--	1.34	--	2045									
2006	1.23	1.20	1.00	1.00	1.00	1.10	1.10	1.10	1.30	1.10	1.30	1.10	1.13	2055	--	--	--	--	--	1.57	--	2055									
2007	1.35	1.20	1.50	1.20	1.00	1.00	1.00	0.80	1.10	1.15	1.15	1.10	1.13	2065	--	--	--	--	--	1.85	--	2065									
2008	1.24	1.14	1.20	1.10	1.00	0.90	0.90	1.10	1.20	1.00	0.90	1.00	1.06	2075	--	--	--	--	--	2.18	--	2075									
2009	1.12	0.95	1.36	0.93	0.96	1.30	0.74	0.80	0.81	0.86	1.18	1.40	1.03	Applied AGR:												1.63%					
2010	1.30	1.44	1.16	0.91	0.90	0.74	0.80	0.71	0.70	0.70	0.60	0.70	0.89	Analysis and Projections Notes												Analysis and Projections Notes					
2011	0.74	0.75	0.74	0.77	0.74	0.83	0.68	1.00	0.90	0.87	0.77	0.97	0.81	AGR of 1.63% is used for WWTP return, per York County projected AGR.										SC entity so LWSP forecast is not applicable							
2012	0.97	0.97	0.99	0.84	0.90	0.82	0.84	0.94	0.90	0.87	0.67	0.67	0.87	--																	
2013	0.70	0.80	0.85	0.88	0.91	0.90	0.93	0.84	0.61	0.61	0.67	1.00	0.81	--																	
2014	1.05	1.02	1.14	1.10	0.78	0.73	0.66	0.74	0.64	0.60	0.65	0.69	0.82	--																	
2015	0.82	0.81	0.87	0.86	0.57	0.49	0.44	0.43	0.45	0.64	0.98	0.96	0.69	--																	
2016	0.80	0.80	-	-	-	-	-	-	-	-	-	-	0.13	--																	
2017	0.66	0.51	0.52	0.68	0.76	0.55	0.52	0.53	0.55	0.48	0.49	0.55	0.57	--																	
2018	0.56	0.67	0.69	0.63	0.54	0.64	0.57	0.67	0.67	0.60	0.91	1.08	0.69	--																	
2019	1.02	0.98	1.11	0.87	0.67	0.68	0.59	0.54	0.43	0.50	0.59	0.80	0.73	--																	
2020	0.93	1.10	0.85	0.70	1.16	0.86	0.72	0.73	0.75	0.95	1.02	0.94	0.89																		

Data Source: USEPA NPDES DMR Online data search

PROJECTIONS SUMMARY

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential		-			-			-			-	
Commercial		-			-			-			-	
Industrial		-			-			-			-	
Institutional		-			-			-			-	
Wholesale		-			-			-			-	
Other		-			-			-			-	
Unaccounted		-			-			-			-	

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source: <Source>; <Contact Person>; <Date>

Historical Data Summary Notes

Using 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.89
2025	0.97
2035	1.14
2045	1.34
2055	1.57
2065	1.85
2075	2.18

Using Base Year Annual Average Flow	
Year	Flow
Base Year	0.82
2025	0.89
2035	1.06
2045	1.26
2055	1.50
2065	1.77
2075	2.10

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.13
Mar	1.15
Apr	1.05
May	0.99
Jun	0.96
Jul	0.88
Aug	0.90
Sep	0.93
Oct	0.90
Nov	0.96
Dec	1.06

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.13
Mar	1.15
Apr	1.05
May	0.99
Jun	0.96
Jul	0.88
Aug	0.90
Sep	0.93
Oct	0.90
Nov	0.96
Dec	1.06

ID No.	SRB-6	Category	Public Water/Wastewater Utilities	ID No.	SRB-6	ID No.	SRB-6	PWS ID:	0
Entity	Camden	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	City of Camden WWTF	Sub-basin	Below Wateree						
Contact	Raymond Peterson	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type							
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg		Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND	2020	--	--	--	--	--	--	1.09	2020							
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	--	--	--	--	--	--	1.92	2025							
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	--	2.40	2035							
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	--	--	--	--	--	--	2.52	2045							
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	--	--	--	--	--	--	2.65	2055							
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2065	--	--	--	--	--	--	2.79	2065							
2007	2.28	1.82	2.14	1.36	1.14	0.92	1.09	1.03	1.02	1.03	1.04	1.49	1.36	2075	--	--	--	--	--	--	2.93	2075							
2008	2.09	1.92	2.26	2.06	1.35	0.99	1.03	1.31	1.04	1.23	1.36	2.03	1.55	Applied AGR: See notes See notes See notes See notes See notes See notes															
2009	1.30	1.15	1.73	1.70	1.41	1.24	1.06	1.10	0.86	1.16	1.70	2.44	1.41	Analysis and Projections Notes															
2010	2.59	2.86	1.87	1.28	1.17	1.33	1.12	1.10	0.85	1.15	1.02	1.13	1.45	AGR of 2.26 used for all categories until 2035, per City of Camden 2007 Comp plan projected AGR.								Analysis and Projections Notes							
2011	1.08	1.66	1.37	1.53	1.53	0.92	0.90	1.21	0.91	1.10	1.09	1.12	1.20	AGR of 0.5 used for all categories after 2035, per Kershaw County projected AGR.								SC Entity, so NC Local Water Supply Plan forecast is not applicable							
2012	1.14	1.23	1.34	1.22	1.09	1.01	1.16	1.41	1.50	1.00	0.85	1.12	1.17	--															
2013	1.36	1.62	1.78	1.43	1.23	1.39	3.08	2.83	1.27	0.99	1.02	1.16	1.60	Camden WWTF will receive 0.7 mgd of groundwater from new industry beginning in 2023. Flow added to 2025															
2014	2.18	1.84	2.28	1.84	1.83	1.59	1.21	1.28	1.53	1.13	1.18	1.57	1.62	--															
2015	2.19	2.01	1.99	1.44	1.02	0.98	0.92	0.87	0.95	2.94	3.09	2.32	1.73	--															
2016	2.08	2.22	1.48	1.29	1.62	1.38	1.08	1.03	1.20	1.42	1.06	1.32	1.43	--															
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2020	-	-	-	-	2.20	1.89	1.34	1.88	1.38	1.21	1.41	1.71	1.09																

Data Source: Water Supply Updates, Meeting with Tom Couch, 1/23/12, 2002-2003 from Previous Report
EPA NPDES Online Search

Customer Data												
Customer Type	2017			2018			2019			2020		
	I	II	III	I	II	III	I	II	III	I	II	III
Residential												
Commercial												
Industrial												
Institutional												
Wholesale												
Other												
Unaccounted												

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source:

Historical Data Summary Notes											
--											
--											
--											
--											
--											
--											
--											
--											

PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	1.09
2025	1.92
2035	2.40
2045	2.52
2055	2.65
2065	2.79
2075	2.93

Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	1.42
2025	2.25
2035	2.73
2045	2.85
2055	2.98
2065	3.12
2075	3.26

Monthly Coefficients	
Month	Coefficient
Jan	1.17
Feb	1.17
Mar	1.17
Apr	0.97
May	1.00
Jun	0.87
Jul	0.90
Aug	0.96
Sep	0.80
Oct	0.92
Nov	0.95
Dec	1.11

PROJECTIONS SUMMARY

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.17
Feb	1.17
Mar	1.17
Apr	0.97
May	1.00
Jun	0.87
Jul	0.90
Aug	0.96
Sep	0.80
Oct	0.92
Nov	0.95
Dec	1.11

ID No.	SRB-7	Category	Public Water/Wastewater Utilities	ID No.	SRB-7	ID No.	SRB-7	PWS ID:	0
Entity	Palmetto Utilities	Type	Return	(continued from previous page)				(continued from previous page)	
Facility	Spears Creek WWTF	Sub-basin	Below Wateree						
Contact	0	IBT?	No						
				<u>PROJECTIONS ANALYSIS</u>				<u>LOCAL WATER SUPPLY PLAN</u>	

HISTORICAL DATA SUMMARY														Projected Flowrates (MGD) (Using 2020 Data)								Projected Flowrates (MGD)							
Flow Rate Data (MGD)														Year	Customer Type						Year	Customer Type							
															Residential	Commercial	Industrial	Institutional	Wholesale	Other		Unaccounted	Residential	Commercial	Industrial	Institutional	Wholesale	Other	Unaccounted
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg	2020	--	--	--	--	--	--	6.80	2020							
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND	2025	--	--	--	--	--	--	6.94	2025							
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND	2035	--	--	--	--	--	--	7.08	2035							
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND	2045	--	--	--	--	--	--	7.22	2045							
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND	2055	--	--	--	--	--	--	7.37	2055							
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND	2065	--	--	--	--	--	--	7.52	2065							
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND	2075	--	--	--	--	--	--	7.67	2075							
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND	Applied AGR:	See notes	See notes				See notes		See notes	See notes					See notes	
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND	Analysis and Projections Notes															
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND																
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND	AGR of 0.5 used for all categories after 2035, per Kershaw County projected AGR.							SC Entity, so NC Local Water Supply Plan forecast is not applicable								
2012	-	-	-	-	-	-	-	-	-	-	-	ND																	
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND	--															
2019	7.07	6.34	6.74	6.21	6.16	6.31	5.85	5.73	5.58	5.73	6.19	6.98	6.24	--															
2020	7.23	7.43	7.20	6.70	7.00	7.00	6.60	6.60	6.50	6.40	6.25	6.68	6.80	--															

Data Source: Water Supply Updates, Meeting with Tom Couch, 1/23/12, 2002-2003 from Previous Report
EPA NPDES Online Search

Customer Data											
Customer Type	2017			2018			2019			2020	
	I	II	III	I	II	III	I	II	III	I	II
Residential											
Commercial											
Industrial											
Institutional											
Wholesale											
Other											
Unaccounted											

Notes: I - Number of customers; II - Per capita flow (gpd/c); III - Total Flow (MGD)
Data Source:

Historical Data Summary Notes											
Limited historical data available from EPA NPDES online search											
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--											

PROJECTIONS SUMMARY

Using 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	6.80
2025	6.94
2035	7.08
2045	7.22
2055	7.37
2065	7.52
2075	7.67

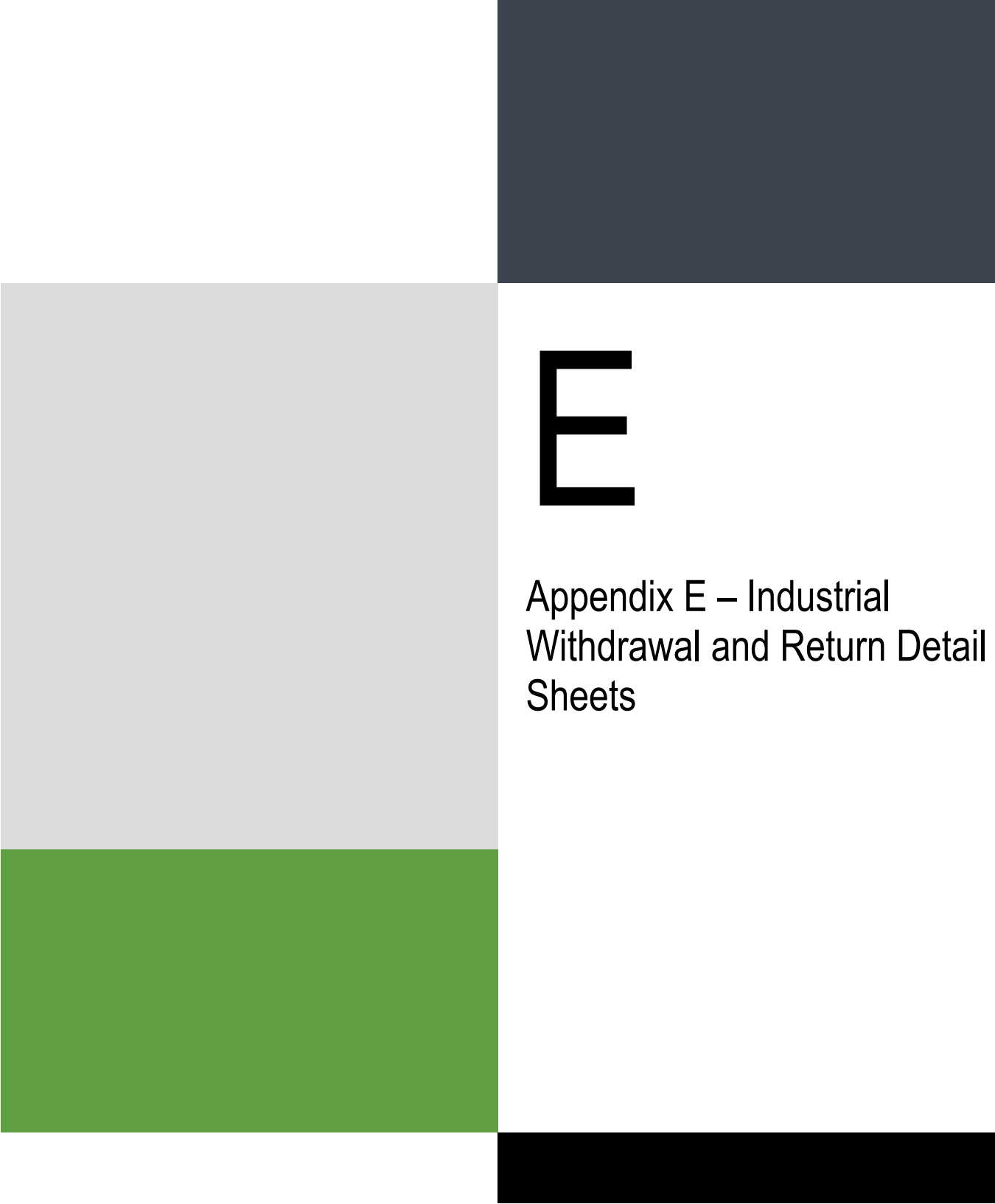
Using Base Year	
Annual Average Flow	
Year	Flow
Base Year	6.52
2025	6.66
2035	6.80
2045	6.94
2055	7.09
2065	7.24
2075	7.39

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.06
Mar	1.07
Apr	0.99
May	1.01
Jun	1.02
Jul	0.95
Aug	0.95
Sep	0.93
Oct	0.93
Nov	0.95
Dec	1.05

PROJECTIONS SUMMARY

Annual Average Flow	
Year	Flow (MGD)
2020	--
2025	--
2035	--
2045	--
2055	--
2065	--
2075	--

Monthly Coefficients	
Month	Coefficient
Jan	1.10
Feb	1.06
Mar	1.07
Apr	0.99
May	1.01
Jun	1.02
Jul	0.95
Aug	0.95
Sep	0.93
Oct	0.93
Nov	0.95
Dec	1.05

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E

Appendix E – Industrial Withdrawal and Return Detail Sheets

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ID No.	SRB-5	Category	Industrial
Entity	Kennecott Ridgway Mining Company	Type	Return
Facility	Mining Facility	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2012	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2014	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2015	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2016	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2017	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2018	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2019	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2020	0.01	0.93	0.91	0.93	0.90	0.90	0.01	0.03	0.39	0.39	0.36	0.39	0.51

Data Source: EPA NPDES DMR

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP		Applied AGR	0.00%
SIC Code	1041	Sector GSP	5.88%		
NAICS Code	212	Inflation	--		

Analysis and Projections Notes	
Sector GSP is 5.88%. Public information suggests the site is closed, but NPDES permit is still active. Applied 0% AGR as a conservative estimate.	
--	
--	

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.51
2025	0.51
2035	0.51
2045	0.51
2055	0.51
2065	0.51

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.05
2025	0.05
2035	0.05
2045	0.05
2055	0.05
2065	0.05

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.11	Jul	0.12
Feb	1.74	Aug	0.15
Mar	1.71	Sep	0.79
Apr	1.75	Oct	0.79
May	1.69	Nov	0.75
Jun	1.69	Dec	0.79

ID No.	SRB-4	Category	Industrial
Entity	SC Department Corrections	Type	Return
Facility	Corrections Wateree River	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.17	0.16	0.14	0.13	0.14	0.13	0.12	0.13	0.13	0.12	0.10	0.10	0.13
2011	0.12	0.12	0.16	0.12	0.12	0.15	0.15	0.14	0.14	0.12	0.13	0.14	0.13
2012	0.13	0.12	0.12	0.11	0.14	0.14	0.18	0.15	0.15	0.15	0.14	0.14	0.14
2013	0.15	0.16	0.15	0.14	0.14	0.16	0.15	0.16	0.16	0.14	0.14	0.15	0.15
2014	0.19	0.17	0.16	0.17	0.17	0.15	0.15	0.18	0.14	0.14	0.13	0.12	0.15
2015	0.18	0.12	0.10	0.11	0.11	0.12	0.15	0.14	0.16	0.19	0.15	0.16	0.14
2016	0.15	0.16	0.15	0.11	0.09	0.11	0.13	0.13	0.14	0.14	0.12	0.11	0.13
2017	0.13	0.12	0.12	0.15	0.13	0.13	0.11	0.11	0.12	0.10	0.11	0.11	0.12
2018	0.11	0.12	0.12	0.12	0.13	0.12	0.13	0.12	0.11	0.13	0.14	0.12	0.12
2019	0.12	0.09	0.11	0.11	0.10	0.10	0.11	5.40	0.11	0.12	0.11	0.11	0.56
2020	0.11	0.11	0.11	0.10	0.12	0.10	0.10	0.16	0.10	0.08	0.09	0.09	0.11

Data Source: EPA NPDES DMR

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP		Applied AGR	0.00%
SIC Code	9223	Sector GSP			
NAICS Code		Inflation	--		

Analysis and Projections Notes	
Historical trend suggests continual, consistent usage. AGR of 0% applied	
--	
--	

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.11
2025	0.11
2035	0.11
2045	0.11
2055	0.11
2065	0.11

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.17
2025	0.17
2035	0.17
2045	0.17
2055	0.17
2065	0.17

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.82	Jul	0.77
Feb	0.77	Aug	3.63
Mar	0.75	Sep	0.78
Apr	0.73	Oct	0.76
May	0.74	Nov	0.72
Jun	0.76	Dec	0.72

ID No.	SRB-2	Category	Industrial
Entity	International Paper Company	Type	Return
Facility	Eastover Mill	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	31.59
2013	-	-	-	-	-	-	-	-	-	-	-	-	29.96
2014	-	-	-	-	-	-	-	-	-	-	-	-	30.24
2015	-	-	-	-	-	-	-	-	-	-	-	-	31.41
2016	-	-	-	-	-	-	-	-	-	-	-	-	33.87
2017	32.31	31.71	27.59	29.50	32.99	33.20	34.79	28.87	35.74	31.22	30.11	34.92	31.91
2018	32.34	34.80	33.20	32.88	34.06	30.64	36.41	41.28	38.65	33.06	34.04	35.61	34.75
2019	39.60	33.17	31.40	30.87	35.24	33.42	35.38	34.82	36.37	30.05	30.51	33.17	33.68
2020	37.11	30.97	32.41	31.93	31.60	31.17	32.55	41.21	40.25	31.99	32.28	32.82	33.87

Data Source: EPA NPDES

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	2612
NAICS Code	322

State GSP	
Sector GSP	1.72%
Inflation	--

Applied AGR	0.50%
-------------	-------

Analysis and Projections Notes
AGR based on Sector GSP: 0.5. Historical Trend shows slight decrease. Applied 1.0% APR
Returns are greater than withdrawals because the also withdraw from wells
No return data was available from 2012 to 2016, so average ratio of 2017-2020 returns to withdrawals was applied.
--

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	33.87
2025	34.73
2035	36.50
2045	38.37
2055	40.33
2065	42.40

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	32.37
2025	33.22
2035	35.00
2045	36.86
2055	38.83
2065	40.89

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.49	Jul	0.48
Feb	0.45	Aug	0.50
Mar	0.43	Sep	0.52
Apr	0.43	Oct	0.43
May	0.46	Nov	0.44
Jun	0.44	Dec	0.47

ID No.	SWB-2	Category	Industrial
Entity	Invista Sarl	Type	Withdrawal
Facility	Chemical Plant	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.04	0.07	0.06	0.06	0.06	0.04
2013	1.72	1.83	1.83	1.91	1.92	2.09	2.24	2.11	2.07	2.08	1.94	1.82	1.96
2014	2.14	2.04	2.04	2.05	2.21	2.19	2.20	2.23	2.26	2.18	2.28	2.36	2.18
2015	2.22	2.20	1.96	1.88	1.97	2.28	2.41	2.43	2.16	1.94	1.92	2.04	2.12
2016	2.05	2.01	1.75	2.00	2.04	2.07	2.00	1.75	1.95	2.04	2.01	1.97	1.97
2017	2.25	2.27	2.08	1.95	2.18	2.15	2.27	2.14	1.62	2.01	1.97	1.88	2.06
2018	2.19	2.02	2.09	2.19	2.27	2.26	2.21	2.23	2.14	2.05	2.06	2.22	2.16
2019	2.33	2.28	2.22	2.04	2.14	2.14	2.02	2.22	2.17	2.12	2.06	2.20	2.16
2020	2.39	2.11	1.99	2.02	1.95	1.89	2.14	2.25	2.17	2.22	2.14	2.05	2.11

Data Source: SC DHEC

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.75%
SIC Code	2824	Sector GSP	1.62%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes	
Chemical Company that produces nylon, spandex, polyester. Sector (Chemical manufacturing) AGR. Modest historical increase. Sector GSP is 1.62%	
0.75 AGR applied	
--	
--	

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	2.11
2025	2.19
2035	2.36
2045	2.54
2055	2.74
2065	2.95

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.86
2025	1.94
2035	2.11
2045	2.30
2055	2.49
2065	2.71

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.03	Jul	1.04
Feb	1.00	Aug	1.04
Mar	0.95	Sep	0.99
Apr	0.96	Oct	1.00
May	1.00	Nov	0.98
Jun	1.02	Dec	0.99

ID No.	SWB-1	Category	Industrial
Entity	Unimin Corp	Type	Withdrawal
Facility	HIGHWAY 1 PLANT	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.77	0.93	0.63	0.66	0.57	0.94	0.87	1.05	1.07	0.55	0.33	0.63	0.75
2013	0.54	0.79	1.15	1.34	1.32	0.90	0.56	0.95	1.52	0.97	0.81	0.51	0.95
2014	0.28	0.81	1.59	1.31	1.19	1.57	1.17	0.91	1.37	0.90	0.55	0.94	1.05
2015	0.58	0.84	1.66	1.38	0.86	1.63	1.22	0.93	1.22	0.76	1.01	1.01	1.09
2016	1.50	2.11	2.45	2.22	1.58	3.67	2.55	2.11	2.54	1.90	1.70	1.34	2.14
2017	1.12	1.46	1.92	1.49	1.30	1.38	1.11	1.10	1.47	0.82	1.30	1.26	1.31
2018	0.87	1.22	1.24	0.85	0.52	1.47	1.39	1.22	1.23	0.94	0.72	1.01	1.06
2019	0.24	0.81	1.53	1.07	0.60	0.56	0.76	1.01	1.12	0.70	0.76	0.22	0.78
2020	0.35	0.82	1.16	1.14	0.69	0.87	0.74	0.85	1.20	0.72	0.82	0.73	0.84

Data Source: SC DHEC

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.50%
SIC Code	4911	Sector GSP	5.88%		
NAICS Code		Inflation	--		

Analysis and Projections Notes	
Sector	AGR is 5.88%, but historical trend shows less aggressive increase. Applied 0.5% AGR
Sector-	Electric Services
--	
--	

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.84
2025	0.86
2035	0.91
2045	0.95
2055	1.00
2065	1.05

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.11
2025	1.13
2035	1.17
2045	1.22
2055	1.27
2065	1.32

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.63	Jul	1.04
Feb	0.98	Aug	1.02
Mar	1.34	Sep	1.28
Apr	1.15	Oct	0.83
May	0.87	Nov	0.81
Jun	1.30	Dec	0.77

ID No.	SRB-1	Category	Industrial
Entity	Unimin Corp	Type	Return
Facility	HIGHWAY 1 PLANT	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	0.25	0.25	0.25	0.25	0.25	0.25	0.13
2020	0.25	0.25	0.40	-	-	-	-	-	-	-	-	-	0.07

Data Source: EPA NPDES DMR Data

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.50%
SIC Code	4911	Sector GSP			
NAICS Code		Inflation	--		

Analysis and Projections Notes
Applied 0.5% APR to align with withdrawals.
Unimin Corporation rebranded as COVIA (SCG730382) in 2018. SCDHEC withdrawals database still refers to org as 'Unimin Corp'
Average 2019-2020 historical return used as base forecasting value
Sector- Electric Services

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.07	Base Year	0.10	Jan	1.24	Jul	1.24
2025	0.08	2025	0.10	Feb	1.24	Aug	1.24
2035	0.08	2035	0.11	Mar	1.99	Sep	1.24
2045	0.08	2045	0.11	Apr	--	Oct	1.24
2055	0.09	2055	0.11	May	--	Nov	1.24
2065	0.09	2065	0.12	Jun	--	Dec	1.24

ID No.	SWB-4	Category	Industrial
Entity	International Paper Company	Type	Withdrawal
Facility	Eastover Mill	Sub-basin	Below Wateree
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	27.75	28.96	28.87	29.16	26.81	30.58	30.93	29.07	29.90	25.99	28.60	27.89	28.70
2013	27.88	26.78	26.81	26.05	27.16	27.98	28.98	29.13	24.70	27.96	26.90	26.07	27.21
2014	27.83	26.33	25.65	25.72	27.11	29.68	30.71	29.81	27.93	25.09	27.04	26.66	27.47
2015	27.83	28.22	27.15	27.19	29.13	29.14	29.92	30.87	28.90	24.97	29.42	29.64	28.53
2016	29.42	29.56	29.55	29.39	29.39	30.36	33.63	35.32	34.16	29.47	29.51	29.41	30.77
2017	30.09	29.63	27.85	27.67	29.80	30.69	31.05	30.92	29.73	28.27	29.69	30.14	29.63
2018	31.40	31.31	30.60	30.65	31.05	31.67	32.99	34.48	34.45	29.56	31.49	33.44	31.93
2019	30.48	29.40	27.51	29.74	31.14	31.76	32.53	32.99	31.95	29.85	29.50	28.70	30.47
2020	29.14	28.18	28.51	28.80	29.25	27.02	33.34	34.49	32.92	28.33	29.87	28.97	29.91

Data Source: SC DHEC Database 2012-2020

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.50%
SIC Code		Sector GSP	1.72%		
NAICS Code	322	Inflation	--		

Analysis and Projections Notes	
Sector GSP: 1.72%. Historical trend shows decrease in recent years. 0.5% AGR applied to be conservative.	
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	29.91	Base Year	29.40	Jan	0.99	Jul	1.07
2025	30.67	2025	30.16	Feb	0.98	Aug	1.08
2035	32.24	2035	31.73	Mar	0.95	Sep	1.04
2045	33.89	2045	33.37	Apr	0.96	Oct	0.94
2055	35.62	2055	35.11	May	0.99	Nov	0.99
2065	37.44	2065	36.93	Jun	1.02	Dec	0.99

ID No.	NWJ-1	Category	Industrial
Entity	Coats American	Type	Withdrawal
Facility	Sevier Finishing Plant	Sub-basin	Lake James
Contact	Sara Hudgins	IBT?	No

HISTORICAL DATA SUMMARY

Coats American													
Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	1.03	0.83	0.93	0.63	0.73	0.73	0.73	0.83	0.83	0.93	0.73	0.83	0.81
2009	0.90	0.80	0.80	0.70	1.00	0.90	0.80	1.00	1.00	1.00	1.00	1.00	0.91
2010	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
2011	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2013	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2014	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2015	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2016	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2017	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2018	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2019	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2020	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Data Source: <Source>; <Contact Person>; <Date>													

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	2269	Sector GSP	-4.56%		
NAICS Code	313312	Inflation	--		

Analysis and Projections Notes
Gross domestic product data for textile industrial sector in NC projects a negative AGR. 0.00% AGR used
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PROJECTIONS SUMMARY

Based on 2020 Data	
Annual Average Flow	
Year	Flow (MGD)
2020	0.50
2025	0.50
2035	0.50
2045	0.50
2055	0.50
2065	0.50

Based on Base Year	
Annual Average Flow	
Year	Flow (MGD)
Base Year	0.60
2025	0.60
2035	0.60
2045	0.60
2055	0.60
2065	0.60

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.03	Jul	0.98
Feb	0.99	Aug	1.01
Mar	1.00	Sep	1.01
Apr	0.95	Oct	1.03
May	1.00	Nov	1.00
Jun	0.99	Dec	1.01

ID No.	NWY-1	Category	Industrial
Entity	Confidential Industry	Type	Withdrawal
Facility	Confidential Industry	Sub-basin	Lake Wylie
Contact	0	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	0.57	0.59	0.65	0.65	0.66	0.67	0.58	0.72	0.56	0.62	0.47	0.42	0.60
2013	0.83	0.76	0.75	0.78	0.84	1.01	0.99	0.95	0.86	0.93	0.89	0.91	0.87
2014	0.98	0.97	0.85	0.95	1.03	1.11	1.07	1.13	1.12	1.03	0.97	0.87	1.01
2015	0.78	0.68	0.77	0.87	0.90	1.03	0.86	0.91	1.12	1.14	0.94	0.89	0.91
2016	0.86	0.81	0.78	0.75	0.99	1.01	0.70	0.82	0.63	0.51	0.53	0.39	0.73
2017	0.45	0.54	0.56	0.50	0.54	0.66	0.58	0.81	0.64	0.71	0.56	0.40	0.58
2018	0.64	0.99	0.59	0.64	0.71	0.83	0.85	0.81	0.70	0.70	0.66	0.49	0.71
2019	0.69	0.73	0.62	0.66	0.74	0.76	0.73	0.78	0.62	0.75	0.69	0.46	0.69
2020	0.58	0.65	0.54	0.37	0.35	0.45	0.49	0.61	0.68	0.65	0.54	0.45	0.53

Data Source: Water Withdrawal & Transfer Registration

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes	
Unknown Sector GSP. Historical trend suggests declining water use. Applied AGR 0%	
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.53
2025	0.53
2035	0.53
2045	0.53
2055	0.53
2065	0.53

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.74
2025	0.74
2035	0.74
2045	0.74
2055	0.74
2065	0.74

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.96	Jul	1.03
Feb	1.01	Aug	1.14
Mar	0.92	Sep	1.05
Apr	0.93	Oct	1.06
May	1.02	Nov	0.94
Jun	1.14	Dec	0.80

ID No.	NWY-2	Category	Industrial
Entity	Clariant Corporation	Type	Withdrawal
Facility	Mt. Holly Plant	Sub-basin	Lake Wylie
Contact	Gil Insley	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.62	0.75	0.70	0.64	0.66	0.61	0.50	0.55	0.55	0.57	0.50	0.51	0.60
2003	0.53	0.46	0.42	0.32	0.41	0.41	0.25	0.25	0.39	0.41	0.02	--	0.32
2004	--	--	--	--	--	--	--	--	--	0.14	0.25	0.34	0.06
2005	0.39	0.30	0.28	0.29	0.28	0.33	0.23	0.20	0.19	0.18	0.14	0.21	0.25
2006	0.20	0.21	0.16	0.17	0.26	0.19	0.17	0.13	0.07	0.17	0.19	0.12	0.17
2007	0.16	0.10	0.10	0.01	0.17	0.10	0.06	0.02	0.02	0.11	0.11	0.11	0.09
2008	0.15	0.18	0.21	0.22	0.17	0.19	0.10	0.07	0.16	0.14	0.12	0.14	0.15
2009	0.12	0.13	0.02	0.01	0.04	0.10	0.08	0.08	0.07	0.09	0.11	0.09	0.08
2010	0.10	0.09	0.12	0.11	0.09	0.13	0.13	0.15	0.09	0.07	0.10	0.17	0.11
2011	0.14	0.12	0.14	0.11	0.14	0.11	0.13	0.14	0.11	0.11	0.10	0.12	0.12
2012	0.25	0.20	0.24	0.23	0.25	0.23	0.25	0.22	0.15	0.21	0.30	0.19	0.23
2013	0.21	0.29	0.21	0.23	0.23	0.41	0.28	0.30	0.33	0.16	0.24	0.21	0.26
2014	0.25	0.23	0.32	0.21	0.23	0.28	0.35	0.34	0.39	0.68	0.36	0.49	0.34
2015	0.43	0.28	0.67	0.53	0.34	0.52	0.35	0.79	0.50	0.43	0.44	0.52	0.48
2016	0.52	0.29	0.37	0.21	0.16	0.52	0.56	0.56	0.48	0.35	0.35	0.19	0.38
2017	0.31	0.26	0.35	0.24	0.29	0.45	0.36	0.41	0.66	0.33	0.36	0.30	0.36
2018	0.31	0.52	0.29	0.18	0.21	0.21	0.21	0.64	0.30	0.22	0.25	0.14	0.29
2019	0.12	0.14	0.12	0.09	0.51	0.31	0.42	0.16	0.08	0.35	0.30	0.26	0.24
2020	0.06	0.04	0.02	0.01	--	0.10	0.19	0.15	0.17	0.01	0.02	0.21	0.08

Data Source: Water Withdrawal & Transfer Registration

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.63%
SIC Code	2869	Sector GSP	2.12%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes
City water was used for process water from Dec 2003 through Sep 2004 based on information received from Clariant.
Per discussion with Clariant (Jan 2022): This is a former manufacturing site that is run by tenants different with uses (concrete, storage, metal boxes, clean energy company with boilers). Do not expect to reach historic water demand.
Applied County AGR as conservative approach.

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.08	Base Year	0.23	Jan	0.99	Jul	1.07
2025	0.08	2025	0.23	Feb	0.91	Aug	1.22
2035	0.09	2035	0.23	Mar	0.99	Sep	1.05
2045	0.09	2045	0.24	Apr	0.75	Oct	1.01
2055	0.10	2055	0.25	May	0.91	Nov	0.99
2065	0.11	2065	0.25	Jun	1.13	Dec	0.96

ID No.	NWY-4	Category	Industrial
Entity	Hedrick Industries	Type	Withdrawal
Facility	Lake Norman Quarry	Sub-basin	Lake Wylie
Contact	Jason Conner	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
2013	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2014	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
2015	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
2016	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09
2017	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09
2018	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
2019	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
2020	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33

Data Source: NC Water Withdrawal and Transfer Database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	108	State GSP	4.10%	Applied AGR	1.94%
SIC Code	--	Sector GSP	2.6%		
NAICS Code	212	Inflation	--		

Analysis and Projections Notes
Manufacturing sector, according to NC GSP. Recent water use suggest growth towards previous peak. Applied AGR 1.94%
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.33
2025	1.46
2035	1.77
2045	2.15
2055	2.61
2065	3.16

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.13
2025	1.26
2035	1.57
2045	1.95
2055	2.40
2065	2.95

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	1.00
Apr	1.00	Oct	1.00
May	1.00	Nov	1.00
Jun	1.00	Dec	1.00

ID No.	SWF-2	Category	Industrial
Entity	New-Indy Catwaba (Formerly Resolute Forest Product; Inc.)	Type	Withdrawal
Facility	Pulp and Paper Mill	Sub-basin	Fishing Creek Reservoir
Contact	Dale Herendeen	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	24.52	24.00	25.19	25.00	24.84	25.87	26.55	26.68	25.57	25.23	24.73	25.32	25.30
2003	24.32	24.48	29.55	29.90	29.87	30.80	31.26	31.48	31.43	31.10	31.83	32.52	29.91
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	33.00	33.32	33.35	35.07	34.97	34.77	34.26	32.06	33.00	33.55	34.10	33.06	33.71
2007	31.87	34.04	33.71	32.70	31.55	31.63	30.13	28.42	26.33	23.61	22.80	22.10	29.04
2008	22.35	22.69	23.52	23.57	23.74	23.97	23.97	24.52	24.40	25.29	24.33	20.84	23.60
2009	25.81	23.11	23.71	24.90	24.29	26.40	25.81	27.81	26.90	26.52	26.30	25.90	25.64
2010	27.29	28.89	27.39	27.50	27.81	29.70	30.00	28.29	31.90	30.10	26.50	30.90	28.85
2011	31.58	31.68	30.26	31.30	30.16	31.17	32.77	32.58	30.47	29.42	28.97	28.48	30.73
2012	28.10	28.17	27.84	30.50	29.35	30.17	28.39	26.94	26.60	25.74	27.60	28.39	28.14
2013	27.61	27.18	26.90	28.07	28.45	29.43	29.74	29.77	30.20	29.45	28.57	29.26	28.73
2014	30.68	29.71	26.42	30.13	29.61	31.10	30.45	29.87	28.50	28.26	28.50	28.23	29.28
2015	29.70	29.58	28.21	29.89	28.92	30.50	29.30	29.40	29.62	28.60	28.57	29.49	29.31
2016	30.49	28.63	25.85	28.94	29.33	30.51	30.97	30.07	30.29	29.48	29.40	30.48	29.54
2017	31.06	29.45	26.74	28.60	28.14	29.69	26.33	25.79	25.27	24.98	24.32	24.28	27.04
2018	26.10	26.29	26.06	26.37	25.10	27.87	26.90	25.90	25.47	25.65	24.97	25.29	25.99
2019	25.32	24.43	24.29	24.48	24.74	21.92	27.97	27.67	25.29	26.99	25.90	27.56	25.57
2020	26.39	26.43	28.82	29.52	24.59	21.23	22.78	21.68	10.56	9.69	16.04	23.13	21.74

Data Source: SC DHEC Withdrawal Database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	129	State GSP	4.09%	Applied AGR	0.00%
SIC Code	--	Sector GSP	1.72%		
NAICS Code	322	Inflation	--		

Analysis and Projections Notes
Historical trend suggestions decrease in water use, although Sector GSP is 1.72%. Applied 0% APR to be conservative
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	21.74	Base Year	27.79	Jan	1.03	Jul	1.03
2025	21.74	2025	27.79	Feb	1.02	Aug	1.01
2035	21.74	2035	27.79	Mar	0.99	Sep	0.97
2045	21.74	2045	27.79	Apr	1.04	Oct	0.95
2055	21.74	2055	27.79	May	1.01	Nov	0.95
2065	21.74	2065	27.79	Jun	1.03	Dec	0.98

ID No.	SWF-4	Category	Industrial
Entity	Nation Ford Chemical	Type	Withdrawal
Facility	Manufacturing Plant	Sub-basin	Fishing Creek Reservoir
Contact	Harlan Hendrick	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.08	1.04	1.08	1.01	1.08	1.08	1.08	1.08	1.04	1.08	1.08	1.01	1.06
2003	1.08	1.04	1.08	1.08	0.84	0.95	1.08	1.08	1.08	1.08	1.08	1.08	1.05
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
2008	2.16	2.09	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.15
2009	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.09	2.16	2.16	2.15
2010	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	3.24	4.32	2.43
2013	4.32	4.32	4.32	4.32	4.32	4.32	4.32	3.07	2.16	4.25	4.32	4.25	4.02
2014	4.32	4.32	4.32	4.32	4.32	3.98	4.32	4.32	4.32	4.32	4.32	4.25	4.29
2015	4.32	4.32	4.32	4.32	4.13	4.32	4.32	4.32	4.32	4.32	4.32	3.81	4.26
2016	3.11	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.22
2017	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.27	4.32
2018	4.31	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32
2019	0.13	0.15	0.14	0.14	0.14	0.13	0.14	0.14	0.13	0.14	0.14	0.14	0.14
2020	4.32	3.82	4.32	4.27	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.28

Data Source: SC DHEC Withdrawal Database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.00%
SIC Code	2865	Sector GSP	1.62%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes	
AGR is set to sector GSP for future flow. Historical trend suggests consistent water use. Applied 0% AGR	
Water is used as non-contact cooling water.	
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	4.28	Base Year	3.11	Jan	0.98	Jul	1.01
2025	4.28	2025	3.11	Feb	0.99	Aug	0.98
2035	4.28	2035	3.11	Mar	1.01	Sep	0.95
2045	4.28	2045	3.11	Apr	1.01	Oct	1.00
2055	4.28	2055	3.11	May	1.00	Nov	1.03
2065	4.28	2065	3.11	Jun	1.00	Dec	1.04

ID No.	NRJ-1	Category	Industrial
Entity	Baxter Healthcare Corporation	Type	Return
Facility	Baxter Healthcare Corporation	Sub-basin	Lake James
Contact	Stephen Gouge	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.87	0.91	0.92	0.85	0.89	0.90	0.83	0.94	0.94	0.99	1.04	0.91	0.91
2003	1.03	0.98	0.93	0.90	0.93	0.87	0.94	1.03	1.03	1.03	0.99	1.02	0.97
2004	0.93	0.86	0.89	0.75	0.86	0.79	0.90	0.87	0.87	0.85	0.81	0.85	0.85
2005	0.86	0.87	0.86	0.77	0.76	0.92	0.93	0.94	0.96	0.82	0.84	0.78	0.86
2006	0.84	0.83	0.77	0.75	0.80	0.85	0.80	0.96	0.92	0.97	0.83	0.85	0.85
2007	0.92	0.89	0.91	0.83	0.85	0.87	0.78	0.87	0.81	0.85	0.83	0.77	0.85
2008	0.85	0.89	0.82	0.86	0.79	0.87	0.77	0.75	0.76	0.76	0.65	0.69	0.79
2009	0.70	0.74	0.81	0.77	0.80	0.77	0.63	0.68	0.67	0.71	0.69	0.70	0.72
2010	0.71	0.70	0.68	0.71	0.72	0.78	0.71	0.76	0.74	0.81	0.74	0.69	0.73
2011	0.80	0.84	0.84	0.77	0.80	0.81	0.71	0.73	0.74	0.76	0.71	--	0.71
2012	0.98	0.89	0.80	0.75	0.82	0.87	0.81	0.90	0.76	0.75	0.69	0.69	0.81
2013	0.73	0.83	0.83	0.86	0.88	0.88	0.63	0.69	0.68	0.79	0.78	0.70	0.77
2014	0.69	0.75	0.81	0.76	0.73	0.74	0.70	0.69	0.71	0.69	0.77	0.71	0.73
2015	0.70	0.76	0.76	0.72	0.69	0.75	0.69	0.71	0.70	0.69	0.71	0.69	0.71
2016	0.70	0.71	0.68	0.73	0.69	0.73	0.66	0.72	0.70	0.72	0.69	0.67	0.70
2017	0.68	0.69	0.74	0.74	0.81	0.77	0.95	0.77	0.96	0.92	0.88	0.85	0.81
2018	0.81	0.86	0.94	0.94	0.96	0.87	0.83	1.04	1.04	1.01	0.87	0.89	0.92
2019	0.88	1.00	0.98	0.94	0.95	0.95	0.88	1.04	1.11	1.11	1.03	1.01	0.99
2020	1.01	1.07	1.04	1.04	1.02	0.89	0.76	0.99	0.96	0.92	0.74	0.73	0.93

Data Source: NC Withdrawal and Transfer Database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.50%
SIC Code	--	Sector GSP	5.13%		
NAICS Code	62	Inflation	--		

Analysis and Projections Notes	
Health Care sector is increasing dramatically (>5%), and there has been a slight increase in historical water use. Applied 0.5% AGR	
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.93
2025	0.95
2035	1.00
2045	1.05
2055	1.11
2065	1.16

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.80
2025	0.82
2035	0.87
2045	0.93
2055	0.98
2065	1.04

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	0.94
Feb	1.04	Aug	1.02
Mar	1.03	Sep	1.02
Apr	1.01	Oct	1.04
May	1.02	Nov	0.97
Jun	1.03	Dec	0.88

ID No.	NRJ-2	Category	Industrial
Entity	Coats American	Type	Return
Facility	Sevier Finishing Plant	Sub-basin	Lake James
Contact	Sara Hudgins	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.41	0.47	0.46	0.59	0.57	0.65	0.69	0.65	0.63	0.64	0.59	0.51	0.57
2003	0.62	0.65	0.64	0.68	0.81	0.83	0.77	0.83	0.80	0.85	0.80	0.60	0.74
2004	--	--	--	--	--	--	--	0.84	0.69	0.95	0.77	0.57	0.32
2005	0.66	0.63	0.64	0.70	0.69	0.73	0.69	0.84	0.71	0.87	0.56	0.54	0.69
2006	0.60	0.64	0.69	0.72	0.76	0.67	0.61	0.61	0.63	0.60	0.56	0.51	0.63
2007	0.71	0.65	0.94	0.81	0.55	0.55	0.62	0.59	0.55	0.71	0.53	0.49	0.64
2008	0.53	0.54	0.51	0.49	0.48	0.44	0.45	0.55	0.54	0.54	0.49	0.48	0.50
2009	0.49	0.51	0.51	0.52	0.58	0.63	0.57	0.58	0.59	0.57	0.55	0.58	0.56
2010	0.53	0.56	0.57	0.58	0.57	0.60	0.58	0.56	0.51	0.51	0.52	0.55	0.56
2011	0.59	0.54	0.52	0.54	0.49	0.45	0.44	0.44	0.50	0.53	0.52	0.50	0.50
2012	0.50	0.40	0.50	0.60	0.60	0.50	0.60	0.60	0.60	0.60	0.50	0.50	0.54
2013	0.50	0.50	0.50	0.50	0.60	0.60	0.70	0.60	0.50	0.50	0.50	0.60	0.55
2014	0.50	0.50	0.50	0.50	0.50	0.50	0.60	0.60	0.60	0.60	0.50	0.50	0.53
2015	0.50	0.40	0.40	0.50	0.50	0.50	0.50	0.40	0.50	0.50	0.60	0.60	0.49
2016	0.60	0.60	0.60	0.60	0.50	0.60	0.50	0.60	0.60	0.50	0.50	0.50	0.56
2017	0.50	0.60	0.50	0.60	0.60	0.60	0.50	0.50	0.60	0.60	0.50	0.50	0.55
2018	0.50	0.60	0.50	0.50	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.57
2019	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.68	0.30	0.30	0.40	0.46
2020	0.50	0.60	0.60	0.50	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.58

Data Source: NC Withdrawal and Transfer Registry

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	2269	Sector GSP	-4.56%		
NAICS Code	313312	Inflation	--		

Analysis and Projections Notes
Gross domestic product data for textile industrial sector in NC projects a negative AGR, historical trend shows consistent use. 0.00% AGR used
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	0.58	Base Year	0.55	Jan	0.98	Jul	1.02
2025	0.58	2025	0.55	Feb	0.99	Aug	1.00
2035	0.58	2035	0.55	Mar	1.01	Sep	1.04
2045	0.58	2045	0.55	Apr	1.03	Oct	1.00
2055	0.58	2055	0.55	May	1.02	Nov	0.94
2065	0.58	2065	0.55	Jun	1.01	Dec	0.96

ID No.	NRR-1	Category	Industrial
Entity	SGL Carbon Corporation	Type	Return
Facility	SGL Carbon Corporation	Sub-basin	Lake Rhodhiss
Contact	Rick Ives	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	2.00	2.00	2.20	2.10	2.10	2.50	2.10	2.00	1.20	0.90	0.70	0.70	1.71
2003	0.90	0.70	1.00	0.90	0.70	1.10	0.70	1.10	0.70	0.70	0.60	0.70	0.82
2004	0.80	0.60	0.50	0.80	0.50	0.40	0.50	0.50	0.70	0.50	0.70	0.80	0.61
2005	0.60	0.60	0.50	0.40	0.50	0.50	0.50	0.60	0.80	0.90	0.80	0.80	0.63
2006	0.60	0.60	0.80	0.70	0.70	0.80	0.70	0.90	2.40	0.80	0.70	0.70	0.87
2007	0.80	0.70	0.70	0.70	0.90	1.00	0.90	1.10	0.90	1.00	1.10	1.40	0.94
2008	1.40	1.20	1.20	1.20	1.20	1.50	1.40	1.20	1.60	1.10	1.00	1.30	1.27
2009	1.20	1.10	1.10	0.90	0.60	0.60	0.40	0.40	0.40	0.60	0.80	0.80	0.74
2010	0.80	1.00	0.80	0.80	1.00	1.10	1.20	1.20	1.20	1.20	1.20	1.20	1.06
2011	1.10	1.00	0.90	1.00	1.10	1.00	1.30	1.40	1.60	1.30	1.30	1.40	1.20
2012	-	-	-	-	-	-	-	-	-	-	-	-	0.90
2013	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2014	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2015	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2016	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2017	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2018	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2019	-	-	-	-	-	-	-	-	-	-	-	-	1.20
2020	-	-	-	-	-	-	-	-	-	-	-	-	1.20

Data Source: USEPA DMR
DMAG Submission

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.85%
SIC Code	3624	Sector GSP	0.85%		
NAICS Code	335991	Inflation	--		

Analysis and Projections Notes
*Permit states that discharge is not limited.
Carbon and Graphite Product Manufacturing Facility
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USEPA DMR NPDES does not have average flow records for 2012-2020 only max. Leveraged DMAG annual average data 2012-2020.
Applied sector GSP for forecasting horizon.

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	1.20
2025	1.25
2035	1.36
2045	1.48
2055	1.61
2065	1.76

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	1.11
2025	1.16
2035	1.27
2045	1.39
2055	1.52
2065	1.66

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.36	Jul	0.36
Feb	0.34	Aug	0.37
Mar	0.33	Sep	0.49
Apr	0.32	Oct	0.36
May	0.33	Nov	0.37
Jun	0.36	Dec	0.41

ID No.	NRH-1	Category	Industrial
Entity	Huffman Finishing, Inc.	Type	Return
Facility	Huffman Finishing	Sub-basin	Lake Hickory
Contact	Lee T. Huffman	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.09	0.14	0.11	0.10	0.11	0.14	0.15	0.14	0.11	0.11	0.08	0.10	0.11
2003	0.11	0.10	0.10	0.13	-	0.11	0.11	0.10	0.10	0.11	0.13	0.14	0.10
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	0.04	0.04	0.02	0.06	0.02	0.03	0.02	0.01	0.02	0.03	0.03	0.03	0.03
2007	0.06	0.06	0.06	0.05	0.05	0.05	0.03	0.04	0.05	0.05	0.06	0.07	0.05
2008	0.07	0.08	0.06	0.07	0.06	0.06	0.05	0.02	0.03	0.03	0.03	0.02	0.05
2009	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.05	0.05	0.04	0.03	0.04
2010	0.04	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.01	0.02
2011	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.03	0.02	0.03	0.02	0.02
2012	0.07	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.04	0.06
2013	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.04
2014	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04	0.03	0.03
2015	0.03	0.04	0.04	0.04	0.05	0.06	0.05	0.05	0.06	0.06	0.07	0.06	0.05
2016	0.06	0.06	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05
2017	0.05	0.06	-	-	-	0.05	0.05	0.03	0.04	0.04	0.04	0.05	0.03
2018	0.05	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.07	0.05
2019	0.06	0.07	0.07	0.06	0.07	0.07	0.05	0.05	0.04	0.05	0.05	0.05	0.06
2020	0.05	0.05	0.06	-	0.13	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04

Data Source: USEPA NPDES DMR online database

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	2252	Sector GSP	-8.61%		
NAICS Code	31511	Inflation	--		

Analysis and Projections Notes
Apparel manufacturing sector AGR is negative for NC. Used a 0% AGR for forecasting future flow returns.
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.04
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.04

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.04
2025	0.04
2035	0.04
2045	0.04
2055	0.04
2065	0.04

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.10	Jul	0.93
Feb	1.12	Aug	0.83
Mar	0.99	Sep	0.95
Apr	0.91	Oct	1.01
May	1.06	Nov	1.06
Jun	1.02	Dec	1.02

ID No.	NRL-1	Category	Industrial
Entity	Schneider Mills, Inc.	Type	Return
Facility	Schneider Mills WWTP	Sub-basin	Lookout Shoals Lake
Contact	Gary D. Elder	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.29	0.33	0.31	0.30	0.32	0.31	0.31	0.35	0.31	0.32	0.29	0.28	0.31
2003	0.30	0.29	0.29	0.29	0.28	0.31	0.30	0.34	0.35	0.36	0.32	0.35	0.32
2004	--	--	--	--	--	--	--	0.27	0.28	0.29	0.27	0.32	0.12
2005	0.30	0.30	0.27	0.26	0.24	0.28	0.27	0.27	0.24	0.23	0.18	0.33	0.27
2006	0.28	0.34	0.31	0.33	0.34	0.34	0.32	0.35	0.32	0.32	0.34	0.38	0.33
2007	0.30	0.39	0.39	0.39	0.41	0.45	0.47	0.45	0.41	0.37	0.34	0.39	0.40
2008	0.39	0.43	0.35	0.38	0.32	0.37	0.37	0.36	0.35	0.35	0.31	0.36	0.36
2009	0.34	0.28	0.29	0.25	0.29	0.30	0.26	0.25	0.25	0.28	0.25	0.28	0.28
2010	0.28	0.31	0.32	0.32	0.33	0.34	0.35	0.27	0.25	0.27	0.25	0.28	0.30
2011	0.30	0.31	0.31	0.31	0.28	0.33	0.32	0.35	0.34	0.35	0.34	--	0.29
2012	0.33	0.33	0.33	0.30	0.32	0.31	0.30	0.33	0.31	0.30	0.27	0.30	0.31
2013	0.30	0.30	0.29	0.32	0.31	0.31	0.30	0.28	0.26	0.28	0.26	0.28	0.29
2014	0.27	0.26	0.29	0.33	0.34	0.35	0.34		0.29	0.32	0.28	0.31	0.28
2015	0.28	0.25	0.26	0.27	0.28	0.32	0.36	0.30	0.30	0.24	0.21	0.26	0.28
2016	0.22	0.25	0.24	0.27	0.24	0.24	0.24	0.30	0.29	0.28	0.26	0.28	0.26
2017	0.25					0.27	0.24	0.26	0.27	0.29	0.30	0.33	0.19
2018	0.26	0.26	0.23	0.22	0.24	0.25	0.19	0.23	0.21	0.23	0.22	0.20	0.23
2019	0.25	0.27	0.25	0.25	0.26	0.27	0.20	0.26	0.24	0.27	0.23	0.18	0.24
2020	0.22	0.25	0.22	0.23	0.26	0.26	0.22	0.25	0.26	0.26	0.22	0.23	0.24

Data Source: USEPA NPDES DMR Online Data search

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	2221	Sector GSP	-4.56%		
NAICS Code	313	Inflation	--		

Analysis and Projections Notes
Textile industrial sector has had a negative historical AGR for the state domestic gross product. Use a 0.00% growth rate for conservative estimate of future returns.
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.24
2025	0.24
2035	0.24
2045	0.24
2055	0.24
2065	0.24

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.28
2025	0.28
2035	0.28
2045	0.28
2055	0.28
2065	0.28

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.00	Jul	1.05
Feb	0.99	Aug	0.99
Mar	0.96	Sep	1.02
Apr	0.97	Oct	1.03
May	0.99	Nov	0.96
Jun	1.10	Dec	0.95

ID No.	NRV-1	Category	Industrial
Entity	Clariant Corporation	Type	Return
Facility	Mount Holly East (MHE) Facility	Sub-basin	Lake Wylie
Contact	Gil Insley	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.61	0.33	0.49	0.59	0.55	0.88	0.82	0.64	0.62	0.62	0.75	0.84	0.65
2003	0.81	0.56	0.52	1.01	1.18	1.26	1.40	1.10	1.06	0.67	0.42	0.20	0.85
2004	0.19	0.19	0.13	0.16	0.49	0.69	0.76	0.75	0.75	0.62	0.68	0.76	0.52
2005	0.60	0.54	0.75	0.51	0.75	1.00	0.82	0.82	0.74	0.77	0.71	0.60	0.72
2006	0.54	0.64	0.58	0.43	0.42	0.40	0.31	0.37	0.45	0.43	0.46	0.35	0.45
2007	0.45	0.33	0.53	0.53	0.31	0.38	0.39	0.22	0.27	0.34	0.25	0.36	0.36
2008	0.20	0.33	0.36	0.28	0.40	0.31	0.42	0.42	0.54	0.41	0.45	0.40	0.38
2009	0.29	0.37	0.53	0.53	0.52	0.43	0.38	0.37	0.34	0.36	0.42	0.47	0.42
2010	0.38	0.44	0.38	0.36	0.34	0.38	0.43	0.36	0.28	0.29	0.33	0.38	0.36
2011	0.33	0.40	0.44	0.37	0.42	0.39	0.44	0.52	0.44	0.36	0.47	0.38	0.41
2012	0.36	0.30	0.27	0.31	0.38	0.30	0.30	0.27	0.18	0.20	0.17	0.28	0.28
2013	0.32	0.35	0.34	0.35	0.36	0.32	0.39	0.20	0.15	0.19	0.21	0.38	0.30
2014	0.34	0.30	0.43	0.79	0.19	0.17	0.11	0.38	0.26	0.13	0.18	0.20	0.29
2015	0.31	0.25	0.26	0.33	0.10	0.10	0.21	0.14	0.04	0.24	0.71	0.83	0.29
2016	0.87	0.72	0.45	0.14	0.21	0.12	0.16	0.17	0.55	0.68	0.21	0.18	0.37
2017	0.34	0.19	0.18	0.33	0.64	0.52	0.48	0.58	0.43	0.46	0.50	0.53	0.43
2018	0.33	0.36	0.33	0.27	0.31	0.16	0.13	0.28	0.27	0.30	0.25	0.22	0.27
2019	0.16	0.23	0.19	0.35	0.19	0.33	0.48	0.41	0.62	0.56	0.56	0.44	0.38
2020	0.78	0.56	0.18	0.25	0.29	0.21	0.31	0.30	0.39	0.25	0.35	0.62	0.37

Data Source: NC Water Withdrawal and Transfer Registry

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	2869	Sector GSP	2.12%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes
Originally for manufacturing. Around 2015-2019 they used groundwater remediation system that used water, but only treating sanitary and stormwater now.
Plans to separate out stormwater and get NPDES to then pipe sanitary left to the Charlotte.
WWTP is ramping down and assumed no returns by 2025 WWTP and send to Charlotte for treatment.
No projections applied, only 2020 values

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.37
2025	0.37
2035	
2045	
2055	
2065	

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.36
2025	0.36
2035	
2045	
2055	
2065	

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.12	Jul	0.92
Feb	1.08	Aug	0.93
Mar	1.02	Sep	0.97
Apr	1.05	Oct	0.97
May	0.95	Nov	1.03
Jun	0.84	Dec	1.12

ID No.	NRY-2	Category	Industrial
Entity	Delta Apparel, Inc	Type	Return
Facility	Delta Apparel Incorporated	Sub-basin	Lake Wylie
Contact	Wayne Kelly	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.87	0.92	0.89	0.91	0.90	0.84	0.89	0.88	0.85	0.84	0.76	0.60	0.85
2003	0.83	0.81	0.89	0.82	0.65	0.71	0.66	0.82	0.89	0.94	0.87	0.68	0.80
2004	0.68	0.54	0.75	0.73	0.84	0.93	0.61	0.89	0.86	0.83	0.91	0.82	0.78
2005	--	0.93	0.86	0.91	0.86	0.87	0.75	0.82	0.91	0.87	0.80	0.63	0.76
2006	0.89	0.79	0.91	0.70	0.87	0.93	0.82	0.94	0.96	1.00	0.74	0.83	0.87
2007	0.91	0.86	0.84	0.94	1.01	1.09	1.14	1.13	1.11	1.15	1.17	0.99	1.03
2008	1.13	1.13	0.93	1.06	1.09	0.96	0.99	1.10	1.14	1.14	1.03	0.65	1.03
2009	0.69	0.74	0.93	0.81	0.75	0.79	0.75	0.75	0.86	0.92	0.91	0.72	0.80
2010	0.90	0.92	0.88	0.99	0.95	0.97	0.91	0.99	0.98	0.99	0.91	0.79	0.93
2011	0.94	0.94	0.99	0.94	0.90	0.98	0.95	1.08	1.02	1.02	0.90	0.73	0.95
2012	0.93	0.71	0.87	0.63	0.85	0.70	0.75	0.91	0.90	0.86	0.82	0.59	0.79
2013	0.83	0.87	0.82	0.83	0.83	0.88	0.90	0.86	0.90	0.81	0.79	0.59	0.83
2014	0.79	0.78	0.79	0.82	0.80	0.67	0.50	0.55	0.59	0.62	0.62	0.45	0.66
2015	0.54	0.50	0.50	0.49	0.48	0.48	0.43	0.47	0.54	0.53	0.51	0.39	0.49
2016	0.50	0.55	0.57	0.56	0.56	0.50	0.23	0.06	0.06	0.19	0.34	0.27	0.36
2017	0.33	0.41	0.49			0.41	0.36	0.50	0.50	0.59	0.52	0.47	0.38
2018	0.69	0.68	0.70	0.64	0.64	0.64	0.62	0.71	0.67	0.72	0.59	0.41	0.64
2019	0.64	0.67	0.69	0.72	0.68	0.69	0.57	0.73	0.59	0.58	0.44	0.37	0.61
2020	0.50	0.46	0.47	0.53	0.36	0.33	0.26	0.32	0.39	0.34	0.37	0.31	0.39

Data Source: USEPA NPDES DMR online search

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	0.00%
SIC Code	--	Sector GSP	-4.56%		
NAICS Code	313-314	Inflation	--		

Analysis and Projections Notes
Sector GSP is negative, applied AGR of 0% to be conservative

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.39
2025	0.39
2035	0.39
2045	0.39
2055	0.39
2065	0.39

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.72
2025	0.72
2035	0.72
2045	0.72
2055	0.72
2065	0.72

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.04	Jul	0.95
Feb	1.02	Aug	1.03
Mar	1.06	Sep	1.04
Apr	0.99	Oct	1.06
May	1.00	Nov	0.99
Jun	1.02	Dec	0.80

ID No.	NRY-3	Category	Industrial
Entity	FMC Corporation	Type	Return
Facility	Lithium Division Plant	Sub-basin	Lake Wylie
Contact	John Casisa	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	0.39	0.63	0.53	0.64	0.25	0.16	0.01	--	0.05	0.00	2.73	0.71	0.50
2003	0.89	1.03	0.99	1.21	3.48	1.69	4.38	2.06	1.49	1.10	0.70	0.79	1.66
2004	--	1.54	0.96	0.76	0.68	0.44	0.06	0.27	0.78	1.02	1.17	0.80	0.70
2005	0.90	0.88	0.91	1.35	0.85	0.30	0.86	2.99	0.58	1.26	0.71	0.92	1.05
2006	0.84	0.88	0.83	0.63	0.28	0.16	2.47	4.25	0.62	0.32	10.95	0.41	1.88
2007	1.64	1.18	1.20	0.78	0.51	0.28	0.23	0.42	0.14	0.13	0.16	0.00	0.55
2008	0.12	0.22	0.79	0.84	0.52	0.32	0.69	6.43	1.26	0.66	0.36	0.43	1.06
2009	4.49	0.78	1.48	1.09	0.94	0.62	0.45	0.30	0.18	0.26	0.32	0.48	0.95
2010	0.90	2.55	1.44	0.91	0.82	1.70	--	4.25	--	0.65	0.44	4.25	1.49
2011	0.22	2.69	0.87	1.30	0.71	0.61	0.02	--	0.35	0.46	1.38	--	0.70
2012	0.78	0.65	0.16	0.41	0.59	0.51	0.03	--	--	0.51	0.31	--	0.33
2013	--	0.53	0.53	0.46	--	--	--	0.57	0.54	0.40	--	--	0.25
2014	0.52	0.53	0.52	0.52	0.50	0.45	--	--	--	0.48	0.39	--	0.32
2015	0.45	0.46	0.46	0.15	0.18	0.21	0.18	--	--	0.46	0.46	0.48	0.29
2016	0.45	0.44	0.43	0.43	0.41	0.39	--	--	--	0.28	0.10	--	0.24
2017	0.37	0.44	0.43		--	--	--	--	--	0.42	0.38	--	0.17
2018	--	--	--	0.45	0.43	0.36	--	--	0.45	0.46	0.46	0.45	0.25
2019	0.45	0.46	0.47	0.45	0.43	0.37	0.39	0.37	0.35	--	--	--	0.31
2020	0.37	0.38	0.38	0.37	0.36	0.36	0.37	0.35	0.33	0.30	0.30	0.29	0.35

Data Source: EPA DMR Search

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	1.00%
SIC Code	2819	Sector GSP	2.09%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes
--Chemical manufacturer.
NPDES Permit: NC0005177
--
Sector GSP for chemical manufacturing is 2.09%. Applied taper approach to reflect only slight variation in historical use. Applied AGR 1%
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.35
2025	0.37
2035	0.40
2045	0.45
2055	0.49
2065	0.54

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.61
2025	0.63
2035	0.67
2045	0.71
2055	0.76
2065	0.81

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.27	Jul	0.53
Feb	1.33	Aug	1.85
Mar	1.09	Sep	0.46
Apr	0.96	Oct	0.63
May	0.73	Nov	1.75
Jun	0.69	Dec	0.74

ID No.	NRY-6	Category	Industrial
Entity	Pharr Yarns, Inc	Type	Return
Facility	Pharr Yarns Industrial WWTP	Sub-basin	Lake Wylie
Contact	Mike Church	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	7.08	0.15	0.11	0.18	0.10	0.11	0.10	0.11	0.09	0.08	0.06	0.08	0.70
2003	0.09	0.08	0.08	0.08	0.09	0.09	0.07	0.06	0.05	0.07	0.05	0.07	0.07
2004	--	--	--	--	0.11	--	--	0.12	0.14	0.14	0.15	0.13	0.07
2005	0.14	0.14	0.21	0.18	0.17	0.23	0.21	0.25	0.21	0.18	0.15	0.18	0.19
2006	0.20	0.16	0.15	0.21	0.17	0.16	0.13	0.20	0.16	0.21	0.19	0.12	0.17
2007	0.15	0.17	0.16	0.16	0.16	0.20	0.16	0.19	0.14	0.14	0.11	0.20	0.16
2008	0.16	0.18	0.16	0.09	0.11	0.11	0.10	0.13	0.14	0.10	0.06	0.08	0.12
2009	0.17	0.12	0.10	0.08	0.09	0.15	0.11	0.17	0.18	0.13	0.09	0.08	0.12
2010	0.09	0.10	0.09	0.10	0.10	0.09	0.12	0.12	0.11	0.08	0.07	0.08	0.10
2011	0.06	0.09	0.08	0.09	0.17	0.23	0.18	0.24	0.23	0.16	0.11	--	0.14
2012	0.11	0.12	0.12	0.12	0.12	0.13	0.09	0.12	0.11	0.12	0.14	0.11	0.10
2013	0.16	0.13	0.14	0.14	0.16	0.14	0.12	0.14	0.13	0.15	0.15	0.13	0.14
2014	0.10	0.12	0.10	0.11	0.14	0.16	0.14	-	0.12	0.13	0.12	0.15	0.14
2015	0.07	0.07	0.04	0.06	0.07	0.06	0.07	0.06	0.06	0.09	0.11	0.11	0.14
2016	0.05	0.06	0.03	0.06	0.06	0.08	0.09	0.10	0.09	0.05	0.06	0.07	0.14
2017	0.06	0.06	-	-	-	0.08	0.07	0.07	0.06	0.05	0.06	0.06	0.14
2018	0.07	0.09	0.09	0.07	0.08	0.07	0.06	0.08	0.07	0.05	0.05	0.04	0.14
2019	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.01	0.01	0.01	0.04	0.02	0.14
2020	0.01	0.02	0.03	0.02	0.03	-	0.03	0.04	0.04	0.03	-	-	0.14

Data Source: EPA DMR Search & DMAG submission for Annual average (2012-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	
SIC Code	2262	Sector GSP	-4.56%		
NAICS Code	313311	Inflation	--		

Analysis and Projections Notes
Textile industrial sector has had a negative historical AGR for the state domestic gross product.
DMAG annual average from 2012-2014 thought to be more accurate than EPA DMR.
Decommissioned in 2025
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.14
2025	0.14
2035	
2045	
2055	
2065	

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.13
2025	0.13
2035	
2045	
2055	
2065	

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.75	Jul	0.76
Feb	0.76	Aug	0.83
Mar	0.67	Sep	0.81
Apr	0.67	Oct	0.75
May	0.75	Nov	0.67
Jun	0.85	Dec	0.62

ID No.	NRY-11	Category	Industrial
Entity	General Electric Company-Hickory	Type	Return
Facility	General Electric Company-Hickory	Sub-basin	Lake Wylie
Contact	Drew Reeside	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	--	--	--	--	--	--	--	0.08	0.08	0.08	0.08	0.08	0.03
2007	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08
2008	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.08	0.07	0.07	0.08	0.07
2009	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
2010	0.07	0.07	0.07	0.07	0.07	0.07	--	--	--	--	--	--	0.03
2011	--	--	--	--	--	--	0.08	--	--	--	--	--	0.01
2012	--	--	--	--	--	--	--	0.07	0.07	0.07	0.07	0.07	0.03
2013	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.07	0.07
2014	0.06	0.07	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07
2015	0.07	0.06	0.06	0.07	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.07	0.07
2016	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.08	0.07	0.08	0.07
2017	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
2018	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.07
2019	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.07
2020	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Data Source: EPA NPDES DMR

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector		State GSP	4.10%	Applied AGR	0.00%
SIC Code	3612	Sector GSP	--		
NAICS Code	335311	Inflation	--		

Analysis and Projections Notes
Groundwater remediation system discharge. Avg annual flow rate is <0.1 MGD, recommend removing from analysis
NPDES Permit: NC0076643 information shows <0.1 MGD for 2012-2020. DMAG submission says 0/ND. Applied 0% as a conservative approach.
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.07
2025	0.07
2035	0.07
2045	0.07
2055	0.07
2065	0.07

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.06
2025	0.06
2035	0.06
2045	0.06
2055	0.06
2065	0.06

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.97	Jul	0.94
Feb	0.97	Aug	1.05
Mar	0.96	Sep	1.05
Apr	0.97	Oct	1.06
May	0.96	Nov	1.06
Jun	0.94	Dec	1.06

ID No.	NRY-12	Category	Industrial
Entity	Siemens Westinghouse	Type	Return
Facility	Siemens Westinghouse	Sub-basin	Lake Wylie
Contact	Damon Crowther	IBT?	No

HISTORICAL DATA SUMMARY

REMOVE

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	0.02	0.02	0.00	0.01	0.02	0.01	0.02	0.04	0.02	0.03	0.03	0.04	0.02
2009	5.41	5.41	5.41	5.42	5.41	5.40	5.39	5.40	5.42	5.43	5.44	5.43	5.41
2010	6.46	6.45	6.44	6.44	6.42	6.42	6.40	6.41	6.42	6.42	6.43	6.47	6.43
2011	6.46	6.43	6.41	6.42	6.43	6.42	6.40	6.41	6.44	6.45	6.44	6.44	6.43
2012	6.47	7.18	6.52	6.79	6.62	6.89	6.72	6.80	7.08	6.90	7.19	7.00	6.84
2013	7.09	7.87	7.15	7.44	7.30	7.60	7.39	7.41	7.72	7.53	7.83	7.63	7.49
2014	7.67	8.52	7.74	8.04	7.88	8.19	7.96	7.99	8.32	8.10	8.43	8.21	8.08
2015	6.44	6.44	6.45	6.44	6.44	6.45	6.45	6.44	6.48	6.48	6.48	6.48	6.46
2016	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48
2017	6.48	6.48	6.48	--	--	--	--	--	--	--	--	--	1.60
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	-	-	-	-	-	-	ND
2020	-	-	-	-	-	-	-	-	-	-	-	-	ND

Data Source: NC DEQ Water Withdrawal and Transfer Registry & DMAG Submissions (2012-2014)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.10%	Applied AGR	--
SIC Code	--	Sector GSP	--		
NAICS Code	--	Inflation	--		

Analysis and Projections Notes
Plant has been temporarily closed since 2019. DMAG submission and correspondences suggests no anticipated growth
--

PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	ND
2025	--
2035	ND
2045	ND
2055	ND
2065	ND

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	--
2025	--
2035	--
2045	--
2055	--
2065	--

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	1.07	Jul	0.96
Feb	1.11	Aug	0.97
Mar	1.07	Sep	0.98
Apr	0.97	Oct	0.97
May	0.96	Nov	0.99
Jun	0.97	Dec	0.98

ID No.	SRF-1	Category	Industrial
Entity	New-Indy Catwaba (Formerly Resolute Forest Product; f	Type	Return
Facility	Pulp and Paper Mill	Sub-basin	Fishing Creek Reservoir
Contact	Dale Herendeen	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	26.78	21.39	22.01	17.90	17.28	19.59	23.28	19.50	17.50	20.60	32.02	53.20	24.30
2003		-	-	-	-	-	-	-	-	-	-	-	--
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	31.29	30.11	29.71	29.47	21.19	23.10	20.39	34.19	51.90	31.71	49.67	21.29	31.10
2007	33.29	31.21	30.19	27.90	19.10	16.60	18.10	9.90	8.60	12.90	7.23	15.65	19.17
2008	17.81	18.83	29.10	37.60	11.10	6.20	17.39	30.61	20.90	12.39	23.37	62.00	23.99
2009	48.81	20.39	25.52	22.50	20.52	22.80	21.39	16.61	14.27	21.00	42.77	23.19	25.01
2010	26.29	28.11	25.00	23.40	23.90	24.50	18.19	18.71	20.00	15.81	14.40	39.90	23.17
2011	30.29	31.71	53.81	28.30	28.19	28.30	22.52	24.71	18.40	18.81	23.47	45.90	29.57
2012	25.14	23.14	24.41	25.57	24.95	14.55	12.45	23.05	26.47	14.67	9.27	16.17	19.98
2013	56.71	41.51	23.57	30.48	23.85	26.53	26.37	26.03	23.06	25.00	25.26	27.43	29.59
2014	27.69	26.13	26.19	27.46	25.68	24.25	27.29	22.11	22.80	25.42	28.73	27.89	25.97
2015	20.21	22.60	27.11	39.35	23.93	21.20	14.71	15.38	15.17	34.62	54.37	27.39	26.30
2016	27.68	25.23	21.74	21.58	25.66	18.60	14.92	14.53	22.35	26.15	18.69	12.68	20.80
2017	26.29	17.65	20.37	45.97	31.88	21.06	23.40	19.20	19.70	19.00	19.10	19.50	23.61
2018	18.86	23.16	21.66	19.76	22.46	21.66	19.06	18.96	20.46	19.76	21.36	22.56	20.79
2019	20.9	26	19.2	18.2	19	16.1	19.9	18.9	18.3	20.9	21.9	23.2	20.18
2020	25.9	51	48.3	32.7	38.6	20.8	19.7	22.6	15.5	11.6	32.2	42.60	30.06

Data Source: NPDES DMR, provided by RTI SC Project (2012-2018; ECHO Search database (2018-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	129	State GSP	4.09%	Applied AGR	0.32%
SIC Code	2611	Sector GSP	0.32%		
NAICS Code	322	Inflation	--		

Analysis and Projections Notes
Paper manufacturing sector GSP applied AGR 0.32%
SC0001015
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow		Based on Base Year Annual Average Flow		Monthly Coefficients			
Year	Flow (MGD)	Year	Flow (MGD)	Month	Coefficient	Month	Coefficient
2020	30.06	Base Year	24.62	Jan	1.18	Jul	0.80
2025	30.54	2025	25.10	Feb	1.13	Aug	0.85
2035	31.52	2035	26.07	Mar	1.15	Sep	0.86
2045	32.52	2045	27.08	Apr	1.17	Oct	0.84
2055	33.56	2055	28.12	May	0.97	Nov	1.06
2065	34.63	2065	29.19	Jun	0.83	Dec	1.16

ID No.	SRF-3	Category	Industrial
Entity	Nation Ford Chemical	Type	Return
Facility	Manufacturing Plant	Sub-basin	Fishing Creek Reservoir
Contact	Harlan Hendrick	IBT?	No

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
2003	1.08	1.08	1.08	1.08	0.84	0.95	1.08	1.08	1.08	1.08	1.08	1.08	1.05
2004	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.00	1.08	0.68	1.08	1.04
2005	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
2006	1.08	1.08	0.93	1.02	1.08	1.08	0.82	1.05	0.84	1.08	0.98	1.08	1.01
2007	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	--	0.99
2008	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	2.16	1.17
2009	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
2010	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
2011	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
2012	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	3.24	4.32	2.43
2013	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	2.88	4.25	4.32	4.27	4.19
2014	4.32	4.32	4.32	4.32	4.32	3.98	4.32	4.32	4.32	4.32	4.32	4.23	4.28
2015	4.32	4.32	4.32	4.32	4.13	4.32	4.32	4.32	4.32	4.32	4.32	3.94	4.27
2016	3.90	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.28
2017	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.23	4.23	4.23	4.23	4.18	4.28
2018	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.20	4.32	4.32	4.31
2019	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.20	4.32	4.32	4.31
2020	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.20	4.32	4.32	4.31

Data Source: NPDES DMR, provided by RTI SC Project (2012-2018; ECHO Search database (2018-2020)

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--	State GSP	4.09%	Applied AGR	0.25%
SIC Code	2865	Sector GSP	1.62%		
NAICS Code	325	Inflation	--		

Analysis and Projections Notes
Sector growth 1.62%. Historical use is steady from the past few year. Applied AGR 0.25% as a conservative increase.
Water is used as non-contact cooling water.
NPDES Permit: SC0035360
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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	4.31
2025	4.36
2035	4.47
2045	4.59
2055	4.70
2065	4.82

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	3.09
2025	3.14
2035	3.25
2045	3.37
2055	3.48
2065	3.60

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.99	Jul	1.00
Feb	1.00	Aug	1.00
Mar	1.00	Sep	0.96
Apr	1.00	Oct	0.99
May	1.00	Nov	1.02
Jun	1.00	Dec	1.03

ID No.	SRB-10	Category	Industrial
Entity	US Air Force	Type	Return
Facility	Shaw Air Force Base	Sub-basin	Below Wateree
Contact	0	IBT?	0

HISTORICAL DATA SUMMARY

Flow Rate Data (MGD)													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg
2002	-	-	-	-	-	-	-	-	-	-	-	-	ND
2003	-	-	-	-	-	-	-	-	-	-	-	-	ND
2004	-	-	-	-	-	-	-	-	-	-	-	-	ND
2005	-	-	-	-	-	-	-	-	-	-	-	-	ND
2006	-	-	-	-	-	-	-	-	-	-	-	-	ND
2007	-	-	-	-	-	-	-	-	-	-	-	-	ND
2008	-	-	-	-	-	-	-	-	-	-	-	-	ND
2009	-	-	-	-	-	-	-	-	-	-	-	-	ND
2010	-	-	-	-	-	-	-	-	-	-	-	-	ND
2011	-	-	-	-	-	-	-	-	-	-	-	-	ND
2012	-	-	-	-	-	-	-	-	-	-	-	-	ND
2013	-	-	-	-	-	-	-	-	-	-	-	-	ND
2014	-	-	-	-	-	-	-	-	-	-	-	-	ND
2015	-	-	-	-	-	-	-	-	-	-	-	-	ND
2016	-	-	-	-	-	-	-	-	-	-	-	-	ND
2017	-	-	-	-	-	-	-	-	-	-	-	-	ND
2018	-	-	-	-	-	-	-	-	-	-	-	-	ND
2019	-	-	-	-	-	-	0.49	0.53	0.48	0.48	0.38	0.39	0.46
2020	0.50	0.53	0.48	0.42	0.51	0.46	0.44	0.47	0.49	0.42	0.34	0.34	0.45

Data Source: EPA NPDES DMR Data

PROJECTIONS ANALYSIS

Industrial Sector Information

Industrial Sector	--
SIC Code	4512
NAICS Code	4512

State GSP	4.09%
Sector GSP	3.27%
Inflation	--

Applied AGR	0.00%
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Analysis and Projections Notes

Limited historical data to base projections on. Sector GSP is growing, monthly average water use is stable. Applied 0% APR

NPDES Permit: SC0024970: SHAW AFB (SC4310501)-NEW PLANT 1 NEW WELL 1(G43384), SHAW AFB, SC

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PROJECTIONS SUMMARY

Based on 2020 Data Annual Average Flow	
Year	Flow (MGD)
2020	0.45
2025	0.45
2035	0.45
2045	0.45
2055	0.45
2065	0.45

Based on Base Year Annual Average Flow	
Year	Flow (MGD)
Base Year	0.45
2025	0.45
2035	0.45
2045	0.45
2055	0.45
2065	0.45

Monthly Coefficients			
Month	Coefficient	Month	Coefficient
Jan	0.55	Jul	1.03
Feb	0.58	Aug	1.09
Mar	0.53	Sep	1.06
Apr	0.46	Oct	0.98
May	0.56	Nov	0.79
Jun	0.51	Dec	0.80

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