STEPHEN H. HALKIOTIS, CHAIR
BARRY JACOBS, VICE CHAIR
MARGARET W. BROWN
MOSES CAREY, JR.
ALICE M. GORDON

ORANGE COUNTY BOARD OF COMMISSIONERS
POST OFFICE BOX 8181
200 SOUTH CAMERON STREET
HILLSBOROUGH, NORTH CAROLINA 27278

May 30, 2001

RECEIVED
MAY 31 2001
DIVISION OF
WATER RESOURCES

Mr. John Morris, Director
Division of Water Resources
NC Department of Environment & Natural Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

Dear Mr. Morris:

Orange County is pleased to submit this Round 3 Jordan Lake Water Supply Allocation application to preserve its existing 1.0 mgd Level II allocation of Jordan Lake water supply. We believe that the information contained herein supports our request to retain that allocation.

As you are undoubtedly aware, Orange County is and has been the holder of a 1.0 mgd Level II allocation since the conclusion of the original allocation process for Jordan Lake water supplies in 1988. As such, and in accordance with requirements of Environmental Management Commission and the Division of Water Resources and the US Army Corps of Engineers, the County has paid as billed its pro rata share of the interest accruing for the development/ construction costs associated with the water supply portion of Jordan Lake as well as administrative and maintenance costs. Orange County wishes to retain its 1.0 mgd Level II allocation and will certainly commit to making payments as required to address the interest, maintenance and administrative costs. Furthermore, when Orange County does decide to convert to a Level I allocation and actually begin withdrawing from Jordan Lake, it will assume its pro rata share of the capital debt reduction in accordance with the Level I allocation requirements.

As I am sure you are aware, Orange County is unique – in terms of its involvement in the water supply business – among all of those entities that currently have or are seeking an allocation of the Jordan Lake water supply. Orange County, or at least the portion of the County that that would have need of a Jordan Lake water supply, is geographically remote from Jordan Lake itself and very remote from the existing and probable intake sites. This circumstance is not particularly unusual among those entities seeking an allocation. However, unlike the other entities, Orange County does not own or operate any water supply infrastructure (with the exception of a small water supply reservoir) and has no water customers. Furthermore, Orange County has no plan or inclination to become an owner or operator of any additional water supply, treatment or distribution infrastructure. Orange County's role in water supply has been heretofore limited to: 1) constructing (in 1972) a water supply reservoir (Lake Orange) to help address critical and chronic water supply shortages that afflicted the Chapel Hill, Carrboro, Hillsborough and Efland communities; 2) adopting very stringent water shed protection

measures (far in excess of state minimum requirements) for all drinking water watersheds within the County, including the Jordan Lake and Haw River watersheds; and 3) continuously operating its reservoir during seasonal drought/low flow periods by controlled releases of raw water into the Eno River for downstream withdrawal by the Town of Hillsborough's water system, the Orange-Alamance Water System and Piedmont Minerals and for maintaining a minimum in-stream flow residual for the Eno River. The County's role in the latter process is defined in and by the voluntary Eno River Capacity Use Agreement which is monitored by your own agency and by the Environmental Management Commission. Orange County provides water from Lake Orange at no charge to those entities that withdraw from the Eno River as well as those individuals and entities which benefit from maintaining of in-stream flow in the river (the Eno River State Park and riparian property owners).

When Orange County eventually does make use of its Jordan Lake allocation, its lack of infrastructure will compel it to work through a regional interlocal agreement process that will involve at least two and possibly three or more of the water utilities that currently provide water service to areas of the County (City of Durham, Orange Water and Sewer Authority, Town of Hillsborough, City of Mebane and the Orange-Alamance Water System). This interlocal partnership will provide the wherewithal for all necessary water withdrawal, treatment, transmission and distribution operations. Furthermore, any residential or commercial water customer in Orange County that is able to benefit from the availability of a Jordan Lake allocation will do so by being a customer of the existing or expanded water distribution system belonging to one of those utilities named above. Although at this time, Orange County is not a participant in a regional water supply partnership that is currently capable of withdrawing water from Jordan Lake and conveying it into Orange County, the County has significant participatory experience in utility partnerships. The Orange Water and Sewer Authority is itself an entity created as partnership of Chapel Hill, Carrboro and Orange County. Furthermore, Orange County is a full participant in the partnership established by the Eno River Capacity Use Agreement to manage the water supply in the upper Eno River.

With regard to potential use of Jordan Lake water supplies, it is clear that there are currently serious water supply needs in the west-central portion (I-85/I-40/US 70 corridor) of the County. As indicated on the attached map, the I-85/40 corridor west of Hillsborough has been designated by a county-wide utility service area boundary agreement as being an Orange County "interest" or primary service area. Most of this area lies within the existing water service area of the Orange-Alamance Water System, which is a private, non-profit community water utility. Orange-Alamance's existing raw water supplies consist of the Eno River, which is a very limited water supply source for a significant portion of the year, and two high yield (for this area) ground water wells. Its current water demand is approximately 1.2 million gallons per day (mgd), approximately 80% of which is consumed in eastern Alamance County and outside of the Eno-Neuse basin (Haw-Cape Fear basin). During periods of moderate drought, Orange-Alamance's reliable (from a water supply planning standpoint) supply of raw water is approximately 600,000

gallons per day (gpd). Water supply shortfalls are addressed by emergency purchases of treated water from the Mebane-Graham water system, the Hillsborough water system and the City of Durham water system (wheeled through Hillsborough). Orange-Alamance is also currently negotiating with Hillsborough to purchase excess (for now) raw water from Hillsborough's new West Fork Eno River reservoir. Orange-Alamance is evaluating additional measures, such as drilling more wells and transferring existing customers to other water utilities, to address its water supply shortfall. However, even in the most favorable light, Orange-Alamance's plans, emergency treated water purchases and potential near-term purchases of raw water from Hillsborough cannot realistically be considered to be adequate to provide a reliable or uninterruptible water supply sufficient to meet the long-term demands of the service area. In fact, it can be reasonably inferred from its existing water supply plan that - again from a water supply planning standpoint - Orange-Alamance has a current water supply shortfall of approximately 600,000 gpd. Consequently, Orange-Alamance has been forced to become very selective as to providing water service to all classes of new customers and may not be far removed from having to institute a moratorium on all new water services

The I-85/40 corridor is an area in which Orange County has recently experienced exponential rates of residential growth. Furthermore, Orange County has already designated approximately 885 acres along the north and south sides of I-85/40 as an economic development district and is evaluating the entire corridor area as a potential target area for high density residential development. Even by conservative estimates predicated on the County's census based population projections (which essentially ignore recent development trends and targeted non-residential growth potential), water demand for the I-85/40 corridor portion of the Orange-Alamance service area is expected to increase by 400,000 gpd (to a total of approximately 650,000 gpd) over the next 50 years. Without question, some of this growth in residential water demand could be accommodated by exploiting available ground water resources. However, the ground water supply capacity is also limited as a consequence of the area's low-yield fractured rock geology (see attached USGS ground water study for Orange County).

If, by transferring some of its utility customers to other utilities, Orange-Alamance is able to achieve a net reduction in overall system water demand, existing customers in the I-85/40 corridor may not face a water supply crisis in the near term. However, Orange-Alamance's water demand has historically increased by approximately 20,000 gpd each year over the last ten years, even while it was divesting itself of some of its customers with the greatest water demand. Orange-Alamance's own water supply planning projections indicate that (absent the use of the 1.0 mgd Jordan Lake allocation or permanent and continuous water purchases from other utilities) its total system-wide water supply shortfall will exceed 1.5 mgd within the next 20 years.

One other issue of interest related to Orange County's request that it continue to maintain its Level II allocation is that of interbasin transfer. The County's 1.0 mgd allocation falls below the regulatory threshold specified in the Regulation of Surface Water Transfers Act. However, even if it did not, more than 900,000 gpd is currently being transferred from the Neuse Basin (Eno River) to the Cape Fear Basin (Haw River) by the Orange Alamance Water System during periods of unrestricted withdrawal from the Eno River. Depending on the source of Orange-Alamance's emergency water purchases (Durham, Hillsborough or Mebane) the amount of interbasin transfer may be considerably reduced during the period when the Eno River Capacity Use Agreement restricts Eno River withdrawals. Approximately 80 percent of Orange Alamance's current water demand arises from the Haw/Cape Fear Basin portion of its service area. The use of Jordan Lake water supplies in the Orange-Alamance service area would essentially mitigate the existing interbasin transfer.

Orange County does own and operate a small wastewater collection system in a small portion of the I-85/40 corridor. Although this area generates an existing estimated water demand of approximately 200,000 gpd, the wastewater collection system currently operates at a level of approximately 30,000 gpd. Wastewater from the area is pumped east to the Town of Hillsborough's wastewater collection system where it is passed along to the Town's wastewater treatment plant, treated and discharged into the Eno River on the eastern side of town. Orange County does plan to extend the wastewater collection system into portions of I-85/40 corridor that are not currently served, but total system capacity is limited to approximately 500,000 gpd. The City of Mebane also has extended wastewater collection into the Orange County portion of the corridor. Wastewater collected and treated by Mebane is discharged into the Haw River basin. The ultimate extent and capacity of Mebane's collection system is not known but could ultimately be expected to equal the 500,000 gpd capacity of the County system.

Orange County does not own or operate a water utility and has no water supply customers. Consequently, it is not governed by water supply planning regulations and it does not have a water supply plan . However, a major portion of the Round 3 allocation application is essentially a water supply plan document and the application format appears to be predicated on applicants being water utilities that do have water supply plans. This may put Orange County at something of a disadvantage in terms of meeting the Division of Water Resources' requirements for providing information that supports Orange County's request to retain its current Level II allocation. We have, however, included the most up-to-date copy of the Orange-Alamance water supply plan that was available for download from your division's Web site. The data within the plan does confirm the extent of the existing and projected water supply shortage for that system as a whole. Furthermore, Orange County has developed and included a year 2000 update of Orange-Alamance's existing water supply to more fully comply with your data submittal requirements.

Data cited above for projected water supply demands for the Orange County/Eno River basin portion of the Orange-Alamance service area have been generated by Orange County. Total projected water supply demands on the Orange-Alamance system and population projections involving Alamance County are derived either from its existing water supply plan or from linear extrapolations of data from the plan. Independent population projections for the Alamance County portion of Orange-Alamance's service area are not generated by Orange County and thus cannot serve as a basis to project water supply demands for that area . Furthermore, coordination of Orange-Alamance's water supply planning and water service extension policies and activities with Orange County's residential and economic development policies, guidelines and plans is completely voluntary on the part of Orange Alamance. However, Orange County and Orange-Alamance have recently initiated discussions on how to integrate Orange County's development and utility extension imperatives into Orange-Alamance's water supply planning and development process.

In conclusion, I trust that Orange County has provided sufficient information for the Division of Water Resources to evaluate the County's request that it be allowed to maintain its existing 1.0 mgd Level II Jordan Lake allocation. While it is true that Orange County is not a water utility provider, we do have direct utility experience as an operator of the wastewater collection system serving the area we are targeting to receive Jordan Lake water supplies. Furthermore, we have a target area that has a proven need for the water supply and a private non-profit utility in place to serve the area. We also have a role and proven track record in protecting the Jordan Lake watershed and in developing cooperative regional utility/water supply relationships. Because of our unique standing as a jurisdiction that has paid for a Level II allocation from the beginning and has demonstrated a need for this water supply in the future, I trust that you will endorse Orange County's efforts to retain our allocation. If I can provide additional information on this matter, please advise.

Sincerely,

Stephen H. Halkiotis

Stephen H. Halkiotis, Chair
Board of County Commissioners

cc
County Commissioners
Legislative delegation
Orange-Alamance Board of Directors

Section I – Water Demand Forecasts

Orange County has used the water demand forecasts generated by the Orange-Alamance water system to extrapolate demand projections through the year 2050. Orange County has supplemented those forecasts with population projections generated by extrapolation of 1990 and 2000 US Census data for the Orange County portion of the Orange-Alamance service area. However, forecasts for disaggregated water users use the same percentages as those contained within the Orange-Alamance water supply plan. Forecasts were based on the best information and professional judgment available, as well as the following assumptions:

1. Orange County's long-term service/interest area, which is defined as the Water and Sewer Services Boundary Agreement, will remain unchanged during the 50-year planning period.

2. Future demands will continue to be determined by retail water sales within Orange County's service/interest area and Orange-Alamance's service area. The demand forecasts do not anticipate any retail or wholesale delivery outside of these areas.

3. Demand forecasts are based on linear extrapolations of census data. However, the moderate growth rates experienced during the past 20 to 25 years are expected to increase within the Orange County interest/service area.

4. Due to the limited opportunity to develop additional water supplies in the upper Eno basin, future growth and development in the Orange County interest/service area will likely reach "built out" sometime within the 50-year planning period.

Forecasts were disaggregated among four principle customer sectors: residential, commercial, industrial and institutional. The relative demand by each of these sectors is presented in Table 1.

Table 1. Raw Water Demand by Major Use Sectors

Customer/Use Sector	Percent of Total
Residential	48%
Commercial	3.9%
Institutional	2.9%
Industrial	15.1%
Treatment Process Water	2.7%
Unaccounted-for Water	27.4%
Total	**100%**

Future raw water demands for the entire Orange-Alamance system were taken directly from the Orange-Alamance water supply plan. Future raw water demands for the Orange County interest/service area were generated by applying the rates of population growth for each five year increment across the board to each aggregated class of water use. Because the demand forecasts were based on an extrapolation of historic growth and unit consumption data, the distribution of demand among the major user categories in 2050 is not expected to differ substantially from the present day pattern illustrated in Table 1. Varying the assumptions and input parameters would, of course, produce different future demand distributions.

Table 2. Projected Average Day Raw Water Demands (MGD)

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Residential	.63	.71	.79	.87	.95	1.03	1.11	1.19	1.27	1.35	1.43
Industrial	.21	.30	.40	.58	.76	.94	1.12	1.30	1.48	1.66	1.84
Commercial	.053	.078	.102	.150	.198	.222	.246	.270	.294	.318	.342
Institution	.034	.036	.039	.042	.044	.046	.049	.052	.054	.056	.059
System Process Water	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
Unaccounted-for Water	.21	.22	.23	.24	.26	.27	.28	.29	.30	.31	.32
Total Raw Water Demand	**1.17**	**1.37**	**1.60**	**1.91**	**2.25**	**2.54**	**2.83**	**3.13**	**3.43**	**3.71**	**4.02**

Table 3. Projected Average Day Raw Water Demands (MGD) in the Orange County Interest/Service Area

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Residential	.12	.13	.14	.16	.17	.19	.21	.23	.25	.28	.31
Industrial	.04	.04	.05	.05	.05	.06	.07	.07	.08	.09	.10
Commercial	.01	.01	.01	.01	.01	.02	.02	.02	.02	.02	.03
Institutional	.01	.01	.01	.01	.01	.01	.01	.01	.02	.02	.02
System Process Water	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
Unaccounted-for Water	.07	.08	.08	.09	.10	.11	.13	.14	.15	.17	.19
Total Raw Water Demand	**.26**	**.28**	**.30**	**.33**	**.35**	**.40**	**.45**	**.48**	**.53**	**.59**	**.66**

Section II – Conservation and Demand Management

The Orange-Alamance service area as a whole, is a diverse but relatively water-efficient community, as illustrated by the moderate residential use. Average residential consumption, is about 167 gallons per household per day.

Orange-Alamance does not have a program that encourages demand management or water conservation efforts except during drought periods when raw water withdrawals from the Eno River may be severely limited. The system customers within the Orange County portion of the service are may be restricted from outdoor water use such as irrigation, filling swimming pools, wash down activities, car washing. Severe drought restrictions include prohibitions against operating water cooled (evaporation) air conditioning systems, requiring the use of single service (disposable) plates and flatware in restaurants, etc.

Orange-Alamance does not have a leak detection program or sponsor plumbing replacement. It does have a meter replacement program that may address one percent of its meters annually.

Section III – Current Water Supply

Orange-Alamance's existing system consists of Corporation Lake. Orange County owns and operates Lake Orange.

Table 4. Characteristics of Existing Supply Sources	Corporation Lake	Lake Orange
Year Developed	1968	1972
Drainage Area (square miles)	41.2	9.1
Total Volume (bg)	0.02	0.48
Usable Volume (bg)	0.01	0.45
Surface Area at Full Volume (acres)	40	175
20 Year Safe Yield (mgd)	0.37	2.7
Minimum Release Requirements (mgd)	None	varies depending on drought conditions, demands of Hillsborough, Orange-Alamance, Piedmont Minerals, Instream flow requirements

Raw water released from Lake Orange into the river bed of the east fork of the Eno River. It flows several miles downstream to Corporation Lake, where a portion is removed by the Orange-Alamance raw water pumps, thence on down stream for another mile into Lake Ben Johnson, where water is withdrawn by the Town of Hillsborough raw water pumps. A portion of the stream passing through Lake Ben Johnson is withdrawn by the

Piedmont Minerals mining company. Residual flow continues onward down stream in the Eno River. Instream flow quantities and withdrawal quantities for all users is specified under the terms of the Eno River Capacity Use Agreement during periods of low naturally occurring stream flow.

Analysis indicates that the 20-year safe yield of the existing raw water system controlled by Orange County and the Orange-Alamance Water System is approximately 3.1 mgd. However, during the least severe low flow conditions, approximately 2.7 mgd is reserved for use by the Town of Hillsborough and Piedmont Minerals and for maintaining minimum levels of instream flow.

Section IV – Future Water Supply Needs

A summary of raw water demand forecasts, existing water supply, and future needs is presented in Table 6 below and in Table 8-A of the Local Water Supply Plan Update.

Table 5. Summary of Existing Raw Water Supply and Future Needs (MGD)

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Existing System	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
+ Conveyance Upgrades	0	0	0	0	0	0	0	0	0	0	0
+ Expanded Quarry Reservoir	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
Total Available Supply	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
80% Supply	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48
Service Area Demand	1.17	1.37	1.60	1.91	2.25	2.54	2.83	3.13	3.43	3.71	4.02
Surplus (Deficit) re: Total Supply	.57	.77	1.00	1.31	1.65	1.94	2.23	2.53	2.83	3.11	3.42
Surplus (Deficit) re: 80% Supply	**0.69**	**0.89**	**1.12**	**1.43**	**1.77**	**2.06**	**2.35**	**2.65**	**2.95**	**3.23**	**3.54**

Section V – Alternative Supplies

Aside from the acquisition of water supplies from Jordan Lake, there are no alternative water supply scenarios. Lake Orange is closely surrounded by residential development. There are at least two potential reservoir sites on the Eno River or its Seven-Mile Creek tributary. However, each of these sites is beset with a number of adverse characteristics which may fatally limit their utility (I-85 lies just beside the Seven-Mile Creek site and an Eno River/McGowan Creek reservoir would impact or inundate important historical sites.

Section VI – Plans to Use Jordan Lake

Orange County has held a 1.0 MGD Level II Jordan Lake allocation since the EMC first granted allocations in 1988. Historically, this allocation represented a supply source that could supplement Lake Orange water supplies which were already inadequate to meet the needs of the Hillsborough and Orange-Alamance service areas in 1988. A major obstacle to Orange County's use of Jordan Lake water supplies has been its inability to access the supply. It now appears, however, that the City of Durham and other local utilities may be prepared to form a partnership to develop the withdrawal, treatment and transmission facilities necessary to access the Jordan Lake water supply from the west side of the lake. Orange County could certainly participate in such a partnership if were determined to be the most feasible approach to securing an economical water supply for the central portion of the County. At this time, however, it is not known at his time if Orange County's or Orange-Alamance's use of the allocation will be through a regional partnership, or more simply through a long-term finished water purchase/sale and wheeling contracts with Durham, OWASA, Hillsborough or perhaps Chatham County.

Orange County staff plan to begin participating in active discussions with staff of OWASA and Durham and Chatham County about potential joint ventures in withdrawal, transmission, and treatment facilities, including the possible creation of a Jordan Lake water development authority. Because these opportunities have not yet benefited from a full and open public discussion, it is premature to speculate on their eventual outcome.

Orange County will provide more detailed plans to the EMC for its use of Jordan Lake water as these options are more fully developed in the months to come.

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

LOCAL WATER SUPPLY PLAN for JORDAN LAKE ALLOCATION APPLICATION 2000-2001
Part 1: Water Supply System Report for Calendar Year 2000

Completed By: Abdoul Koura-Bodji EIT, Assistant County Engineer Date: 05-30-2001

SECTION 1: GENERAL INFORMATION

1-A. Water System: ORANGE - ALAMANCE 1-B. PWS Identification #: 03-68-020

1-C. River Sub-Basin(s): NEUSE RIVER (10-1), HAW RIVER (02-1)

1-D. County(s): ORANGE, ALAMANCE

1-E. Contact Person: PAUL THAMES Title: CONTY ENGINEER

1-F. Mailing Address: PO BOX 8181 200 S CAMERON ST. CITY HILLSBOROUGH ZIP 27278

1-G. Phone: 919-245-2303 1-H. Fax: 919-644-3004 1-I. E-mail:

1-J. Type of Ownership (Check One): O Municipality O State ☒ County O Federal O Authority O Other_____ O District ☒ Non-Profit Association O For-Profit Business

SECTION 2: WATER USE INFORMATION

2-A. Population Served in 2000 Year-Round 13800

Seasonal (if applicable) N/A For Months of N/A

2-B. Total Water Use for 2000 including all purchased water: 427 Million Gallons (MG)

2-C. Average Annual Daily Water Use in 2000: 1.17 Million Gallons per Day (MGD)

2-D. List 2000 Average Annual Daily Water Use by Type in Million Gallons per Day (MGD):

	Metered Connections		Non-Metered Connections		Total
Type of Use	Number	Average Use (MGD)	Number	Estimated Average Use (MGD)	Average Use (MGD)
(1) Residential	3474	.630			.630
(2) Commercial	85	.053			.053
(3) Industrial	18	.210			.210
(4) Institutional	30	.034			.034
(5) Sales to other Systems					-
(6) System Processes					.030
(7) Subtotal [sum (1) thru (6)]					.957
(8) Average Annual Daily Water Use [Item 2-C]					1.17
(9) Unaccounted-for water [(8) - (7)]					.211

2-E. List the Average Daily and Maximum Day Water Use by Month for 2000 in Million Gallons per Day (MGD):

	Average Daily Use	Maximum Day Use	Max/Ave Ratio		Average Daily Use	Maximum Day Use	Max/Ave Ratio		Average Daily Use	Maximum Day Use	Max/Ave Ratio
Jan	.923	1.180	1.28	May	1.043	1.169	1.12	Sep	1.026	1.155	1.12
Feb	.486	1.016	2.10	Jun	1.092	1.170	1.07	Oct	.411	1.127	2.74
Mar	.814	1.055	1.30	Jul	.954	1.163	1.22	Nov	.832	1.100	1.32
Apr	.969	1.162	1.20	Aug	1.019	1.171	1.15	Dec	.858	1.076	1.25

2-F. List the system's 10 Largest Water Users and their Average Annual Daily Use in Million Gallons per Day (MGD) for 2000: (include sales to other systems)

Water User	Average Daily Use	Water User	Average Daily Use
EFLAND HOSIERY MILL	.008	SPEEDYWAY- EMCO MARKETING	.008
HONDA	.012	VILLASTRIGO	.002
HANCOR	.006	CORTINA	.092
PRESBYTERIAN HOME-NEW WING	.013	EFLAND	.004
MEBANE LUMBER	.006	GREAT AMERICAN	.002

2-G. WATER SALES TO OTHER WATER SYSTEMS IN 2000 List all systems that can be supplied water through existing interconnections (regular and emergency). Mark the locations of connections on the System Map.

1 Water supplied to:		2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s)	5*
Water System	PWSID	MGD	# of Days	MGD	Expiration Date	Inches	R or E

*NOTE Column 5 R=Regular Use, E=Emergency Use

2-H. What is the Total Amount of Sales Contracts for Regular Use? _N/A_____MGD

SYSTEM NAME ORANGE - ALAMANCE PWSID 03-68-020

SECTION 3: WATER SUPPLY SOURCES

3-A. SURFACE WATER List surface water source information. Mark and label locations of intakes on the System Map.

1 Name of Stream and/or Reservoir	2 Drainage Area Square Miles	3 Is Withdrawal Metered? Y / N	4 Sub-Basin	5 Average Daily Withdrawal for days used		6 Maximum Day Withdrawal	7* Available Supply		8* System Component Limiting Daily Output		9 Useable On-Stream Raw Water Supply Storage Million Gallons	10* R or E
				MGD	# of Days	MGD	MGD	Qualifier	Capacity MGD	System Component		
CORPORATE LAKE	42	Y	ENO RIVER	.965	365	1.187	.37	SY20	1.0	O	18.600	R
								Totals				

*NOTES Column 7 Supply Qualifiers: C=Contract amount, SY20=20-year Safe Yield, SY50=50-year Safe Yield, F=20% of 7Q10 or other instream flow requirement, T=Treatment plant capacity, O=Other (specify) _____

Column 8 Component: R=Raw water pumps, T=Treatment facilities, M=Transmission main, D=Distribution system, O=Other (specify)__WATER SUPPLY _____

Column 10 R=Regular Use, E=Emergency Use

3-B. What is the Total Surface Water Supply available for Regular Use? _ .37 MGD

3-C. Does this system have off-stream raw water supply storage? ☒ No ○ Yes Useable Capacity ___N/A_____ Million Gallons

3-D. WATER PURCHASES FROM OTHER WATER SYSTEMS IN 2000

List all systems that can supply water to this system through existing interconnections (regular and emergency). Mark the locations of the connections on the System Map.

1 Water supplied by:		2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s)	5* R or E
Water System	PWSID	MGD	# of Days	MGD	Expiration Date	Inches	
MEBANE-GRAHAM	02-01-015	.48	78	N/A	N/A	12	E
HILLSBOROUGH	03-68-015	.05	64	N/A	N/A	6	E

*NOTE Column 5 R=Regular Use, E=Emergency Use

3-E. What is the Total Amount of Purchase Contracts available for Regular Use? ___N/A_____MGD (Do not include emergency use connections in total)

SYSTEM NAME ORANGE - ALAMANCE PWSID 03-68-020

3-F. GROUND WATER List well information. ***Mark and label the location of all wells on the System Map.***

1 Name or Number of Well	2 Well Depth Feet	3 Casing Depth Feet	4 Screen Depth Top Feet	4 Screen Depth Bottom Feet	5 Well Diameter Inches	6 Pump Intake Depth Feet	7 Is Well Metered? Y / N	8 Average Daily Withdrawal for Days Used MGD	8 Average Daily Withdrawal for Days Used # of Days	9 Maximum Day Withdrawal MGD	10 12-Hour Supply Million Gallons	11* System Component Limiting Daily Output Capacity MGD	11* System Component Limiting Daily Output System Component	12* R or E
2	540	49	75	365	8	365	Y	.06	75	.10	.10	.10	T	R

*NOTES Column 11 Component: R=Raw water pumps, T=Treatment facilities, M=Transmission main, D=Distribution system, O=Other (specify)_____
Column 12 R=Regular Use, E=Emergency Use

3-G. What is the Total 12-Hour Supply of all wells available for Regular Use? ____0.10_____ million gallons

3-H. Are ground water levels monitored? O No ☒ Yes How often? _CONTINUOUSLY_____

3-I. Does this system have a wellhead protection program O No ☒ Yes O Under development

SYSTEM NAME ORANGE - ALAMANCE PWSID 03-68-020

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/2000. ***Mark and label locations on the System Map.***

Water Treatment Plant Name	Permitted Capacity MGD	Source(s)
ORANGE-ALAMANCE	1.35	ENO RIVER

3-K. What is the system's finished water storage capacity? _____.90_____ Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 2000 in Million Gallons per Day (MGD)

	Average Daily Discharge		Average Daily Discharge		Average Daily Discharge		Average Daily Discharge
Jan	.05	Apr	.03	Jul	.04	Oct	.03
Feb	.03	May	.04	Aug	.04	Nov	.04
Mar	.03	Jun	.04	Sep	.04	Dec	.04

4-B. List all Wastewater Discharge and/or Land Application Permits held by the system. ***Mark and label points of discharge and land application sites on the System Map.***

1 NPDES or Land Application Permit Number	2 Permitted Capacity Dec. 31,2000 MGD	3 Design Capacity MGD	4 Average Annual Daily Discharge MGD	5 Name of Receiving Stream	6 Sub-Basin	7 Maximum Daily Discharge MGD
NC 0082759	.05	1.0	.04	ENO RIVER	NEUSE RIVER	.05

SYSTEM NAME ORANGE - ALAMANCE PWSID 03-68-020

4-C. List all Wastewater Discharge Connections with other systems. Mark and label the locations of connections on the System Map.

1 Wastewater Discharger		2 Wastewater Receiver		3 Average Daily Amount Discharged or Received		4 Contract Maximum
Name	PWSID	Name	PWSID	MGD	# of Days	MGD

4-D. Number of sewer service connections: __N/A___

4-E. Number of water service connections with septic systems: __N/A_____ (Number in Sub-basin 1 ____ Number in Sub-basin 2 ____ Number in Sub-basin 3 ____)

4-F. Are there plans to build or expand wastewater treatment facilities in the next 10 years? ☒ No ○ Yes Please explain. _____

SECTION 5: WATER CONSERVATION and DEMAND MANAGEMENT ACTIVITIES

5-A. What is the estimated total miles of distribution system lines? __120_____ miles

5-B. List the primary types and sizes of distribution lines:

	Asbestos Cement (AC)	Cast Iron (CI)	Ductile Iron (DI)	Galvanized Iron (GI)	Polyvinyl Chloride(PVC)	Other
Size Range	6 - 12	-	-	-	2 - 8	-
Estimated % of lines	60%	0 %	0 %	0 %	40 %	0 %

5-C. Were any lines replaced in 2000? ○ No ☒ Yes ____600_____ linear feet

5-D. Were any new water mains added in 2000? ○ No ☒ Yes ___1000_____ linear feet

5-E. Does this system have a program to work or flush hydrants? ○ No ☒ Yes How often? _____1/YEAR_____

5-F. Does this system have a valve exercise program? ○ No ☒ Yes How often? _____2/YEAR_____

5-G. Does this system have a cross-connection control program? O No ☒ Yes

5-H. Has water pressure been inadequate in any part of the system? ☒ No O Yes Please explain. _____

_____

5-I. Does this system have a leak detection program? ☒ No O Yes What type of equipment or methods are used? _____

_____

5-J. Has water use ever been restricted since 1992? O No ☒ Yes Please explain. _____IN ACCORADNCE WITH ENO RIVER CAPACITY_____

USAGE AGGREEMENT_____

5-K. Does this system have a water conservation plan? O No ☒ Yes Please attach a copy. See attached copies

5-L. Did this system distribute water conservation information in 2000? O No ☒ Yes

5-M. Are there any local requirements on plumbing fixture water use which are stricter than the NC State Building Code? ☒ No O Yes Please explain. _____

_____

5-N. Does this system have a program to encourage replacement or retrofit of older, higher water-use plumbing fixtures? O No O Yes

5-O. Does this system have a water shortage or drought response plan? O No ☒ Yes Please attach a copy. See attached copies

5-P. Is raw water metered? O No ☒ Yes

5-Q. Is finished water output metered? O No ☒ Yes

5-R. Do you have a meter replacement program? O No ☒ Yes

5-S. How many meters were replaced in 2000? ___75___ meters

5-T. How old are the oldest meters in the system? __33__ years

5-U. What type of rate structure is used? ☒ Decreasing Block O Flat Rate O Increasing Block O Seasonally Adjusted O Other_____

Attach a detailed description of the rate structure to this document.

5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? ☒ No O Yes # of meters _____

5-W. Does this system use reclaimed water or plan to use it within the next five years? ☒ No O Yes # of connections _____ ; _____ MGD

SECTION 6: SYSTEM MAP

Review, correct, and return the enclosed system map Check Plot to show the present boundaries of the water distribution system service area, points of intake and discharge, wells, water and wastewater treatment facilities, and water and wastewater interconnections with other systems. Also, show any proposed points of intake or discharge, wells, water and wastewater facilities, water and wastewater interconnections, and future service area extensions. Use symbols shown on the attached map.

LOCAL WATER SUPPLY PLAN for JORDAN LAKE ALLOCATION APPLICATION 2000-2001
Part 2: Water Supply Planning Report

Completed By: Abdoul Koura-Bodji EIT, Assistant county Engineer Date: 05-30-2001

WATER SYSTEM: ORANGE-ALAMANCE PWSID:03-68-020

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to be Served	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Year-Round	13800	15550	17300	19050	20800	22550	24300	26050	27800	29550	31300
Seasonal (if applicable)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Please list the months of seasonal demand: _____ Attach a detailed explanation of how projections were calculated.

Table 7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)
Sub-divide each water use type as needed for projecting future water demands.

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Residential	.63	.71	.79	.87	.95	1.03	1.11	1.19	1.27	1.35	1.43
(2) Commercial	.053	.078	.102	.150	.198	.222	.246	.270	.294	.318	.342
(3) Industrial	.21	.30	.40	.58	.76	.94	1.12	1.30	1.48	1.66	1.84
(4) Institutional	.034	.036	.039	.042	.044	.046	.049	.052	.054	.056	.059
(5) System Processes	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
(6) Unaccounted-for water	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31
(7) Total Service Area Demand [sum (1) thru (6)]	1.17	1.37	1.60	1.91	2.25	2.54	2.83	3.13	3.43	3.71	4.02

7-C. Is non-residential water use expected to change significantly through 2050 from current levels of use? ○ No ☒ Yes
If yes, please explain;_EXPECTED INGREASE IN BUSINESSES AND INSTITUTIONS _____

Table 7-D. FUTURE SUPPLIES List all new sources or facilities which were under development as of December 31, 2000 and mark locations on the System Map.

Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply MGD	Development Time years	Year Online

*NOTE R=Regular Use, E=Emergency Use

7-E. What is the Total Amount of Future Supplies available for Regular Use? __N/A_____ MGD

Table 7-F. FUTURE SALES CONTRACTS that have been already agreed to. List new sales to be made to other systems.

1 Water supplied to:		2 Contract Amount and Duration			3 Pipe Size(s) Inches	4* R or E
System Name	PWSID	MGD	Year Begin	Year End		

*NOTE R=Regular Use, E=Emergency Use

7-G. What is the total amount of existing Future Sales Contracts for Regular Use? _____N/A_____ MGD

SECTION 8: FUTURE WATER SUPPLY NEEDS

Local governments should maintain adequate water supplies to ensure that average daily water demands do not exceed 80% of the available supply. Completion of the following table will demonstrate whether existing supplies are adequate to satisfy this requirement and when additional water supply will be needed.

Table 8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY Show all quantities in MGD.

Available Supply, MGD	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Existing Surface Water Supply (Item 3-B)	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
(2) Existing Ground Water Supply (Item 3-G)	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
(3) Existing Purchase Contracts (Item 3-E)	-	-	-	-	-	-	-	-	-	-	-
(4) Future Supplies (Item 7-E)	-	-	-	-	-	-	-	-	-	-	-
(5) **Total Available Supply** [sum (1) thru (4)]	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
Average Daily Demand, MGD	1.17	1.37	1.60	1.91	2.25	2.54	2.83	3.13	3.43	3.71	4.02
(6) Service Area Demand (Item 7-B, Line 7)	-	-	-	-	-	-	-	-	-	-	-
(7) Existing Sales Contracts (Item 2-H)	-	-	-	-	-	-	-	-	-	-	-
(8) Future Sales Contracts (Item 7-G)	-	-	-	-	-	-	-	-	-	-	-
(9) **Total Average Daily Demand** [sum (6) thru (8)]	1.17	1.37	1.60	1.91	2.25	2.54	2.83	3.13	3.43	3.71	4.02
(10) Demand as Percent of Supply [(9) / (5)] x 100	195	228	267	318	375	423	472	522	572	618	670
(11) **Supply Needed to maintain 80%** [(9) / 0.8] - (5)	.86	1.10	1.14	1.79	2.21	2.58	2.94	3.31	3.69	4.04	4.42
Additional Information for Jordan Lake Allocation											
(12) Sales Under Existing Contracts											
(13) Expected Sales Under Future Contracts											
(14) Demand in each planning period [(6)+(12)+(13)]											
(15) Supply minus Demand [(5) - (14)]											

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2030? ○ No ☒ Yes
If yes, your Jordan Lake Water Supply Storage Allocation Application should include the following items:

SYSTEM NAME ORANGE - ALAMANCE PWSID 03-68-020

(1) Alternatives for obtaining additional water supply to meet future demands. Use the following tables to summarize the various future water supply alternatives available to your system. Attach a detailed description of each water supply project shown in each alternative. The sooner the additional supply will be needed, the more specific your plans need to be.

(2) A demand management program to ensure efficient use of your available water supply. A program should include: conducting water audits at least annually to closely monitor water use; targeting large water customers for increased efficiency; modifying water rate structures; identifying and reducing the amount of leaks and unaccounted-for water; and reusing reclaimed water for non-potable uses.

(3) Restrictive measures to control demand if the additional supply is not available when demand exceeds 80% of available supply, such as placing a moratorium on additional water connections until the additional supply is available or amending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

Future Supply Alternative List the components of each alternative scenario including the planning period when each component will come online.

(#1)	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Line (15) from Table 8-A "Existing Supply – Demand"											
(2) Available supply from Project 1 (describe)											
Available supply from Project 2 (describe)											
Available supply from Project 3 (describe)											
(3) Supply available for future needs [(1) + (2)]											
(4) Total discharge to Source Basin											
(5) Consumptive Use in Source Basin											
(6) Total discharge to Receiving Basin											
(7) Consumptive Use in Receiving Basin											
(8) Amount not returned to Source Basin [(6) + (7)]											

List details of the future supply options include in this alternative in the table below.

Future Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply (MGD)	Development Time years	Year Online

Future Supply Alternative List the components of each alternative scenario including the planning period when each component will come online.

(#2)	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Line (15) from Table 8-A "Existing Supply - Demand"											
(2) Available supply from Project 1 (describe)											
Available supply from Project 2 (describe)											
Available supply from Project 3 (describe)											
(3) Supply available for future needs [(1) + (2)]											
(4) Total discharge to Source Basin											
(5) Consumptive Use in Source Basin											
(6) Total discharge to Receiving Basin											
(7) Consumptive Use in Receiving Basin											
(8) Amount not returned to Source Basin [(6) + (7)]											

List details of the future supply options include in this alternative in the table below.

Future Supply Sources

Future Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply (MGD)	Development Time years	Year Online

Attach additional pages as needed to summarize all alternatives.

8-C. Are peak day demands expected to exceed the water treatment plant capacity by 2010? O No ☒ Yes
If yes, what are your plans for increasing water treatment capacity?

__ USAGE OF NEW WELLS_

8-D. Does this system have an interconnection with another system capable of providing water in an emergency? O No ☒ Yes If not, what are your plans for interconnecting (or please explain why an interconnection is not feasible or not necessary).

8-E. Has this system participated in regional water supply or water use planning? O No ☒ Yes Please describe. ____YES THE SYSTEM HAS PARTICIPATED IN ENO RIVER CAPACITY USE DEVELOPMENT PLAN WHICH VOLUNTARY FOR ANY PARTICIPATING SYSTEM ON ENO RIVER

8-F. List the major water supply reports or studies used for planning. ___92 LWSP, STATE MONTHLY REPORTS, MONTHLY LOG SHEETS AND REPORTS

SECTION 9: TECHNICAL ASSISTANCE NEEDS

Is technical assistance needed:

9-A.	to develop a local water supply plan?	O No ☒ Yes
9-B.	with a leak detection program?	O No O Yes
9-C.	with a demand management or water conservation program?	☒ No O Yes
9-D.	with a water shortage response plan?	☒ No O Yes
9-E.	to identify alternative or future water supply sources?	☒ No O Yes
9-F.	with a capacity development plan?	O No O Yes
9-G.	with a wellhead or source water protection plan?	O No ☒ Yes
9-H.	with water system compliance or operational problems?	☒ No O Yes
9-I.	with Consumer Confidence Reports?	☒ No O Yes

9-J. Please describe any other needs or issues regarding your water supply sources, any water system deficiencies or needed improvements (storage, treatment, etc.), or your ability to meet present and future water needs. Include both quantity and quality considerations, as well as financial, technical, managerial, permitting, and compliance issues.

__NEED TO INCREASE SIZE OF OUR CLEARWELL, OUR ABILITY TO MEET PRESENT AND FUTURE WATER NEEDS DEPENDS ON THE AMOUNT OF WATER PURCHASED. DUE TO RESTRICTED USE OF RAW WATER SUPPLY, ESPECIALLY DURING SUMMER MONTHS AND WHEN THE LAKE LEVELS ARE LOW, WE DEPEND ON PURCHASES TO MEET DEMAND. THE BOARD OF DIRECTORS HAS CONSIDERED THE POSSIBILITY OF DIGGING ADDITIONAL WELLS, INSTALLING AN ADDITIONAL CLEARWELL, AND A WATER CONNECTIONWITH DURHAM. INCREASING OUR WATER TREATMENT CAPACITYWOULD NOT BE BENEFICIAL DUE TO THE AVAILABILITY OF WATER.

ATTACHMENTS

1- WATER CONSERVATION PLAN / WATER SHORTAGE OR DROUGHT RESPONSE PLAN

2- MAPS

AN ORDINANCE PROVIDING FOR THE CONSERVATION OF WATER DURING A WATER SHORTAGE, RESTRICTING THE USE OF WATER, AND ALLOCATING AUGMENTED STREAMFLOW FROM COUNTY RESERVOIRS

WHEAREAS, Lake Orange presently provides the principal source of raw water from which the Orange-Alamance Water System, Inc. supplies water to its customers; and

WHEREAS, A critical water supply condition exists on the upper Eno River with only Lake Orange to rely upon in times of drought as a reserve water source for (a) supplying Hillsborough, Orange-Alamance and Orange Water and Sewer Authority, and for (b) augmenting streamflow in the Eno River to assimilate waste discharge from the Town of Hillsborough Wastewater Treatment plant; and

WHEREAS, the level of Lake Orange must be managed to insure that Orange-Alamance Water System, Inc. users have essential supplies of water to protect their health, safety and welfare; and

WHEREAS, some degree of demand reduction and cooperation by the users of the water in this reservoir can extend the time and availability of supplies for all users during critical periods.

NOW, THEREFORE, the Board of Directors of the Orange-Alamance Water System, Inc. ORDAINS:

ARTICLE 1. Water Shortage and Withdrawal/Conservation Restrictions.

A. While water is flowing over the Lake Orange spillway normal conditions will be deemed to exist with no withdrawal or conservation restrictions to be enforced.

A water shortage shall be declared to exist with respect to Lake Orange, whenever the level of Lake Orange reaches the second of six stages shown on Table 1, or whenever emergencies develop such that citizens cannot be supplied with water to protect their health, safety and welfare without curtailing the water demand.

Conservation measures shall be instituted upon reaching the alert state and made more restrictive through successive stages of drought in an effort to prolong the availability of water.

B. In the event of a water shortage in Lake Orange, the President is authorized, empowered, and directed to issue a public proclamation declaring to all persons the existence of such state and the severity thereof, and place in effect the restrictive provisions authorized in Article 3 of this Ordinance.

ARTICLE 2. Unlawful to Use Water Contrary to Provisions of this Ordinance.

In the event the President issues any proclamation authorized by Article 1, then it shall be unlawful for any person, firm, or corporation to use or permit the use of water supplied through the facilities of the Orange-Alamance Water System, Inc., in violation of any of the mandatory restrictions contained in the proclamation until the President by public proclamation, has declared a particular stage of the water shortage to be over and the restrictions applicable to it no longer in effect.

In light of the many benefits that can be derived by conserving water, all persons, firms, or corporations served by the Corporation's water system should follow water conservation practices regardless of the time of year or whether or not a water shortage exists. Water conservation should be followed during all phases of construction-related activities. Where appropriate, water needed should be obtained from supplemental sources. Non-essential construction-related activities which require water should not be undertaken during a declared water shortage.

ARTICLE 3. Restrictive Measures in Effect at Each Stage of a Water Shortage.

The severity of the water shortage shall be determined by the emergency or the level of Lake Orange as shown on Table I.

A. In the event the water level of Lake Orange declines to a stage II elevation of water below Lake Orange spillway, in feet, a stage II water shortage ALERT shall be deemed in effect. When a water shortage ALERT is in effect the following voluntary water restrictions are imposed:

1. Use shower for bathing rather than bathtub and limit shower to no more than four (4) minutes.
2. Limit flushing of toilets by mutiple usage.
3. Do not leave faucets running while bhaving or rinsing dishes.
4. Limit use of clothes washers and dishwashers and when used, operate fully loaded.
5. Limit lawn watering to that which is necessary for plants to survive.
6. Water shrubbery the minimum required, reusing household water when possible.
7. Limit car washing to the minimum.
8. Do not wash down outside areas such as sidewalks, patios, etc.
9. Install water flow restrictive devices in shower heads.
10. Use disposable and biodegradable dishes.
11. Install water saving devices such as bricks, plastics bottles or commercial units in toilet tanks.
12. Limit hours of operation of water-cooled air conditioners.

B. In the event the water level of Lake Orange declines to a stage III elevation of water below Lake Orange spillway, in feet, a stage III water shortage WARNING shall be deemed in effect, and in addition to the restrictions heretofore imposed, the following moderate mandatory water restrictions shall be in effect.

It shall be unlawful to use water from the Eno River through the facilities of the Orange-Alamance Water System, Inc. for the following purposes:

1. To water lawns, grass, shrubbery, trees, flower and vegetable gardens except between the hours of 6:00 p.m. and 9:00 p.m. on Saturdays and Sundays.

2. To fill newly constructed swimming and/or wading pools or refill swimming and/or wading pools which have been drained. A minimal amount of water may be added to maintain continued operation of pools which are in operation at the time the provisions of a stage III WARNING are placed into effect.

3. To operate water-cooled air conditions or other equipment that does not recycle cooling water, except when health and safety are adversely affected.

4. To wash automobiles, trucks, trailers, boats, airplanes, or any other type of mobile equipment, including commercial washing.

5. To wash down outside areas such as streets, driveways, service station aprons, parking lots, office buildings, exteriors of existing or newly constructed homes or apartments, sidewalks, or patios, or to use water for other similar purposes.

6. To operate or introduce water into any ornamental fountain, pool or pond or other structure making similar use of water.

7. To serve drinking water in restaurants, cafeterias, or other food establishment, except upon request.

8. To use water from public or private fire hydrants for any purpose other than fire suppression or other public emergency.

9. To use water for dust control or compaction.

10. To use water for any unnecessary purpose or to intentionally waste water.

C. In the event the water level of Lake Orange declines to a stage IV elevation of water below Lake Orange spillway, in feet, a stage IV water shortage DANGER shall be deemed in effect, and in addition to the restrictions heretofore imposed, the following severe mandatory water restrictions shall be in effect. It shall be unlawful:

1. To water or sprinkle any lawn.
2. To water any vegetable garden or ornamental shrubs except during the hours of 6:00 p.m. to 9:00 p.m. on Saturday.
3. To make any non-essential use of water for commercial or public use, and the use of single service plates and utensils is encouraged and recommended in restaurants.

D. In the event the water level of Lake Orange declines to a stage V elevation of water below Lake Orange spillway, in feet, a stage V water shortage EMERGENCY shall be deemed in effect, and in addition to the restrictions heretofore imposed, the following stringent mandatory water restrictions shall be in effect, and in addition to the restrictions heretofore imposed, the following severe mandatory water restrictions shall be in effect. It shall be unlawful:

1. To use water outside a structure for any use other than an emergency use involving fire.
2. To operate an evaporative air conditioning unit which recycles water except during the operating hours of the business.
3. To introduce water into any swimming pool.

E. In the event the water level of Lake Orange declines to a stage VI ELEVATION OF WATER BELOW Lake Orange spillway, in feet, a stage VI water shortage CRISIS shall be deemed in effect, and a system of water rationing shall be put in effect in addition to all previously imposed restrictions. In the event of water rationing in which water will be supplied in the minimal quantities required for the health, welfare, and safety of the customers in accordance with a program determined by the Board of Directors of Orange-Alamance Water System, Inc.

1. It shall be unlawful to fail to act in accordance therewith or use water in any manner or attempt to evade or avoid such water rationing restrictions.

2. Fire protection will be maintained, but where possible tank trucks shall use raw water.

ARTICLE 4. Penalties.

A. Any water user of Orange-Alamance Water System, Inc. that violates any provisions of this ordinance shall first be warned of such violation. If such violation continues, user shall be subject to having water service discontinued upon a determination by the Board of Directors that any such customer has violated the provisions of this ordinance.

ARTICLE 5.

A. All ordinances and clauses of ordinances in conflict herewith are hereby repealed.

B. This ordinance shall become effective when adopted.

Adopted this the 10th day of July, 1986.

NORTH CAROLINA

ORANGE COUNTY

I, Turner Forrest, Sec.-Treas. of Orange-Alamance Water System, Inc., do hereby CERTIFY that the foregoing Ordinance was duly adopted by the Board of Directors in the Board Meeting of July 10, 1986 and is a part of the minutes of said meeting.

WITNESS my Hand and Seal of Orange-Alamance Water System, Inc.

Turner Forrest, Sec.-Treas.

Date July 10, 1986