Jordan Lake
Water Supply Allocation

Application

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Applications requirements:

- Population and Demand to 2060
  - Include methodology and assumptions
- Presently available sources and yield
- Map of current and future service areas
- Alternative sources
  - Potential yield, quality, costs
- Demand management practices
- Plans to utilize Jordan Lake
- Financial commitment statement
- Additional necessary information

15A NCAC 2G .0500

Application Contents

I. Water Demand Forecast

II. Conservation and Demand Management

III. Current Water Supply

IV. Future Water Supply Needs

V. Alternative Water Supplies

VI. Plans to Use Jordan Lake

I. Water Demand Forecast

- Average Daily Amounts
- 2010 – 2060
- By use sector
  - Residential, Commercial, Industrial, Institutional, unique facilities
  - Describe members of each sector
- Usage rate by sector
  - Consider Demand Management (Section II)
- Explain Methodology / Assumptions

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Project Sector Demand

- Residential Use
  - Population or dwelling units
    - (single / multi-family)
  - Effects of demand management program
  - Explain basis of usage rate
- Commercial
- Industrial
- Institutional
- Unique Facilities
- % for system processes & unaccounted-for

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Projections

* denotes required fields

Population Projections	2009	2010	2020	2030	2040	2050
*Year-Round	288	0	0	0	0	0
Seasonal		0	0	0	0	0

Water Use Projections (MGD)	2006	2010	2020	2030	2040	2050
*Residential	0.016	0	0	0	0	0
*Commercial	0.002	0	0	0	0	0
*Industrial	0.000	0	0	0	0	0
*Institutional	0.003	0	0	0	0	0
*System Process	0.003	0	0	0	0	0
Unaccounted-for Estimate	Calculate	0.000	0.000	0.000	0.000	0.000
*Unaccounted-for Fill	0.003	0	0	0	0	0

Note:

Add 2060 data here

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Demand Worksheet

Table 7-B Projected Average Daily Service Area Demand in Million Gallons per Day (MGD) (Do not include sales to other systems)											Optional
		2010	2015	2020	2025	2030	2035	2040	2050	2060	Build-out
(1) Residential											
(2) Commercial											
(3) Industrial											
(4) Institutional											
Sub-total		0	0	0	0	0	0	0	0	0	0
(5) System Processes percent	%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
(6) Unaccounted-for Water percent	%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
(7) Total Service Area Demand		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Sales Commitments											
Existing Sales Contracts (list buyer)											
Existing commitments for additional Future Sales (list buyer)											
Total Sales Contracts		0	0	0	0	0	0	0	0	0	0
Total System Demand		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
		2010	2015	2020	2025	2030	2035	2040	2050	2060	Build-out

Current Water Supply

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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		
								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) _____

Column 10 R=Regular Use, E=Emergency Use

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		5 Well Diameter Inches	6 Pump Intake Depth Feet	7 Is Well Metered? Y / N	8 Average Daily Withdrawal for Days Used		9 Maximum Day Withdrawal MGD	10 12-Hour Supply Million Gallons	11* System Component Limiting Daily Output		12* R or E
			Top Feet	Bottom Feet				MGD	# of Days			Capacity MGD	System Component	

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	

Current Water Supply

Available Supply, MGD		2010	2015	2020	2025	2030	2035	2040	2050	2060	Build-out
(1) Existing Surface Water Supply	(Item 3-B)										
(2) Existing Ground Water Supply	(Item 3-G)										
(3) Existing Purchase Contracts	(Item 3-E)										
(4) Future Supplies	(Item 7-E)										
(5) Total Available Supply [sum (1) thru (4)]											

Estimating Existing and Alternative Option Yields

- SW
  - Reservoir
    - model calculated period-of-record yield
    - USGS Annual Mass Curve 50-year return period if not in model
  - Run-of-river
    - Site-specific study
    - 20% 7Q10 calculated in model basecase scenario
- GW – 12-hour yield based on pump test since 2005
- PW – contract commitment

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Water Supply Needs

Table 8-A Average Daily Demand as Percent of Supply (Show all quantities in Million Gallons per Day)											Optional
Available Supply , MGD		2010	2015	2020	2025	2030	2035	2040	2050	2060	Build-out
(1) Existing Surface Water Supply (Item 3-B)											
(2) Existing Ground Water Supply (Item 3-G)											
(3) Existing Purchase Contracts (Item 3-E)											
(4) Future Supplies (Table 7-D)											
(5) Total Available Supply		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(6) Service Area Demand											
(7) Existing Sales Contracts (Item 2-H)											
(8) Future Sales Contracts (Item 7-G)											
(9) Total Average Daily Demand		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(10) Demand as Percent of Supply		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
(11) Supply Needed to maintain 80%		0	0	0	0	0	0	0	0	0	0
Additional Information for J.L. Allocation											
(12) Sales Under Existing Contracts											
(13) Expected Sales Under Future Contracts											
(14) Demand in Each Planning Period		0	0	0	0	0	0	0	0	0	0
(15) Supply minus Demand		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Conservation & Demand Management

- Cost-recovery Rate Structure
- Residential rates not declining
- Leak detection & repair Program
- Regular water audits
- Meter all water use (where practical)
- Consumer Education Program
- Evaluate reclaimed water options

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JORDAN LAKE WATER SUPPLY ALLOCATION ROUND #3
WATER DEMANDS BY SECTOR

WATER SERVICE PROVIDER:			
ESTIMATED POPULATION SERVED BY SYSTEM:	167,743	People	
AVERAGE DAILY WATER DEMAND FOR SYSTEM:	31.1000	MGD	(includes bulk water sales)
Total Average Daily Water Use for Single-Family Residential Users:	9.7790	MGD	
Total Average Daily Water Use for Multi-Family Residential Users:	3.2560	MGD	
Total Average Daily Water Use for Commercial Users:	4.6870	MGD	
Total Average Daily Water Use for Industrial Users:	1.9770	MGD	
Total Average Daily Water Use for Institutional Users:	2.9050	MGD	

Meter Size	5/8"	3/4"	1"	1.5"	2"	3"	4"	6"	8"	10"
5/8" Meter Equiv. Ratios	1	1.5	2.5	5	8	15	25	50	80	

(Source: APWA, Manual C-704)

Single-Family Residential Users Average Daily Water Use For Class: 9.779 MGD

	Number of Customers By Meter Size										Totals
	5/8"	3/4"	1"	1.5"	2"	3"	4"	6"	8"	10"	
# Accounts (Customers)	42,475		623	206	279	11	4	1	1	1	43,601
# Meters	42,475		623	206	279	11	4	1	1	1	43,601
Ratio	1	1.5	2.5	5	8	15	25	50	80		
Total Meter Equivalents	42,475.0	0.0	1,557.5	1,030.0	2,232.0	165.0	100.0	50.0	80.0		47,689.5

Single-Family Residential Class Usage Factors:

Usage Per Capita in GPD:	58.3
Usage Per Account (Customer) in GPD:	224.3
Usage Per 5/8" Meter Equivalent in GPD:	205.1

SUMMARY USAGE RATES:
System Name: 0

	GPD per Capita	GPD per Account	GPD per 5/8" ME
Single-Family Residential	58.3	224.3	205.1
Multi-Family Residential	19.4	2,559.7	839.7
Commercial	27.9	1,431.1	441.5
Industrial	11.8	19,969.7	1,805.5
Institutional	17.3	3,863.0	822.2

Alternative Comparisons

Costs (planning estimates)

- Capital Costs
  - Design & Construction
  - Land acquisition
  - Facilities and Equipment
  - Operation and Management
- Contingency = 10%
- Net Present Worth 2010-2060
- Include replacement costs if appropriate
- Financing rate ____ %
- Discount rate 1.295%

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Alternative Comparisons

	Applicant									
	Date									
8-B Future Supply Alternative 1										
List the Components of each alternative scenario including the planning period when each component will come online.										
Describe Alternative	(label the alternative presented in this table)									
	2010	2015	2020	2025	2030	2035	2040	2050	2060	Build-out
(Describe each component project)										
(2) Available supply from project 1										
Available supply from project 2										
Available supply from project 3										
(3) Supply Available for future needs	0	0	0	0	0	0	0	0	0	0
(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	0	0	0	0	0	0	0	0	0	0

List details of the future supply options included in this alternative scenario							
Future Source	PWSID	SW or GW	GS 143-215.22G Basin	Wat. Qual lassificatio	Additiona Supply	evelopme ime (years	Year Online

Alternative Comparisons

Alternatives	Summary Description
Alternative 1	
Alternative 2	
Alternative 3	
(etc.)	

	Alternatives				
	(Example)	1	2	3	4
Total Supply (MGD)	24				
Environmental Impacts	More				
Water Quality Classification	WS-III				
Interbasin Transfer (MGD)	3				
Regional Partnerships	Yes				
Technical Complexity	Complex				
Institutional Complexity	Not Complex				
Political Complexity	Very Complex				
Public Benefits	Few				
Consistency with Local Plans	Yes				
Total Cost ($ Millions)	12.7				
Unit Cost ($/1000 gallons)	2.12				

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VI. Plans to Use Jordan Lake

- When will use begin
- Locations of intakes, discharges, and treatment facilities
- Cooperative arrangements
- Schedule of development