



XEROX

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Administrator



# Job Messages

**XEROX**

## Administrator

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# Job Messages

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The online help contains information regarding the fields in this report.

# Introductions

NRC Environmental Site Audit

July 14 - 17, 2008



**Progress Energy**

# Introductions

- Welcome
- Meeting Participants Listing
  - ◆ Grouped by breakout topic sessions  
*(third page from back of handout)*
- Introductions of participants

# Agenda

- Refer to 9-page handout titled *“Harris Site Audit Schedule – FINAL”*
- Note that each day will begin and end here in Auditorium A
- Lunch will be at 12:00 or 12:30 each day in the Boardroom across the hall
- Discussion of break-out meeting rooms will be provided in Orientation presentation by Paul Snead

# Organization Overview

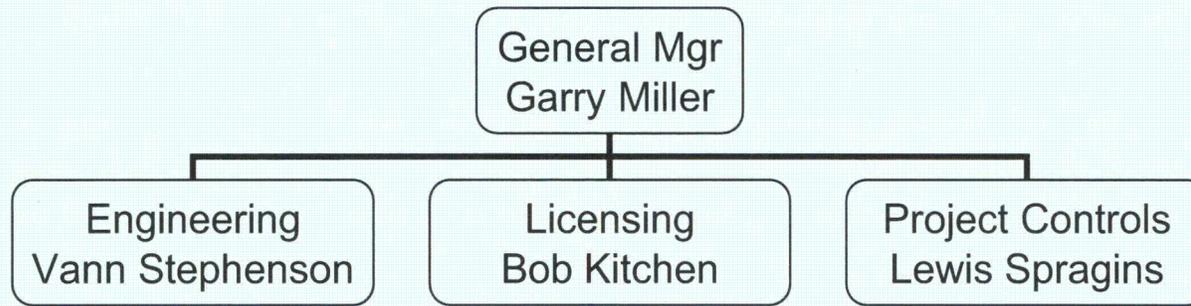
NRC Environmental Site Audit

July 14 - 17, 2008



**Progress Energy**

# Nuclear Plant Development Organization



- COLA  
(Developing COLAs for Harris in the Carolinas and Levy in Florida)

- Site Specific Engineering

# Nuclear Plant Development Joint Venture Team

- Sargent & Lundy
  - ◆ Project Management
  - ◆ COLA preparation
- Worley Parsons
  - ◆ Assigned FSAR chapters
  - ◆ Conceptual Design - Circulating Water System
  - ◆ Plant water use requirements
- CH2MHILL
  - ◆ Site Investigation & Characterization
  - ◆ Environmental Report
  - ◆ Emergency Plan

# Leads and Supervision

- Progress Energy:
  - ◆ Paul Snead – Lead Env. Specialist
  - ◆ Bob Kitchen – Manager, Licensing
- CH2MHILL:
  - ◆ Eric Woods – HAR ER Task Lead
  - ◆ Lorin Young – Technical Project Manager

# Welcome Again

- NRC
- Other Regulatory Guests
- NRC Opening Remarks

# **HAR Site Orientation and Audit Overview**

NRC Environmental Site Audit

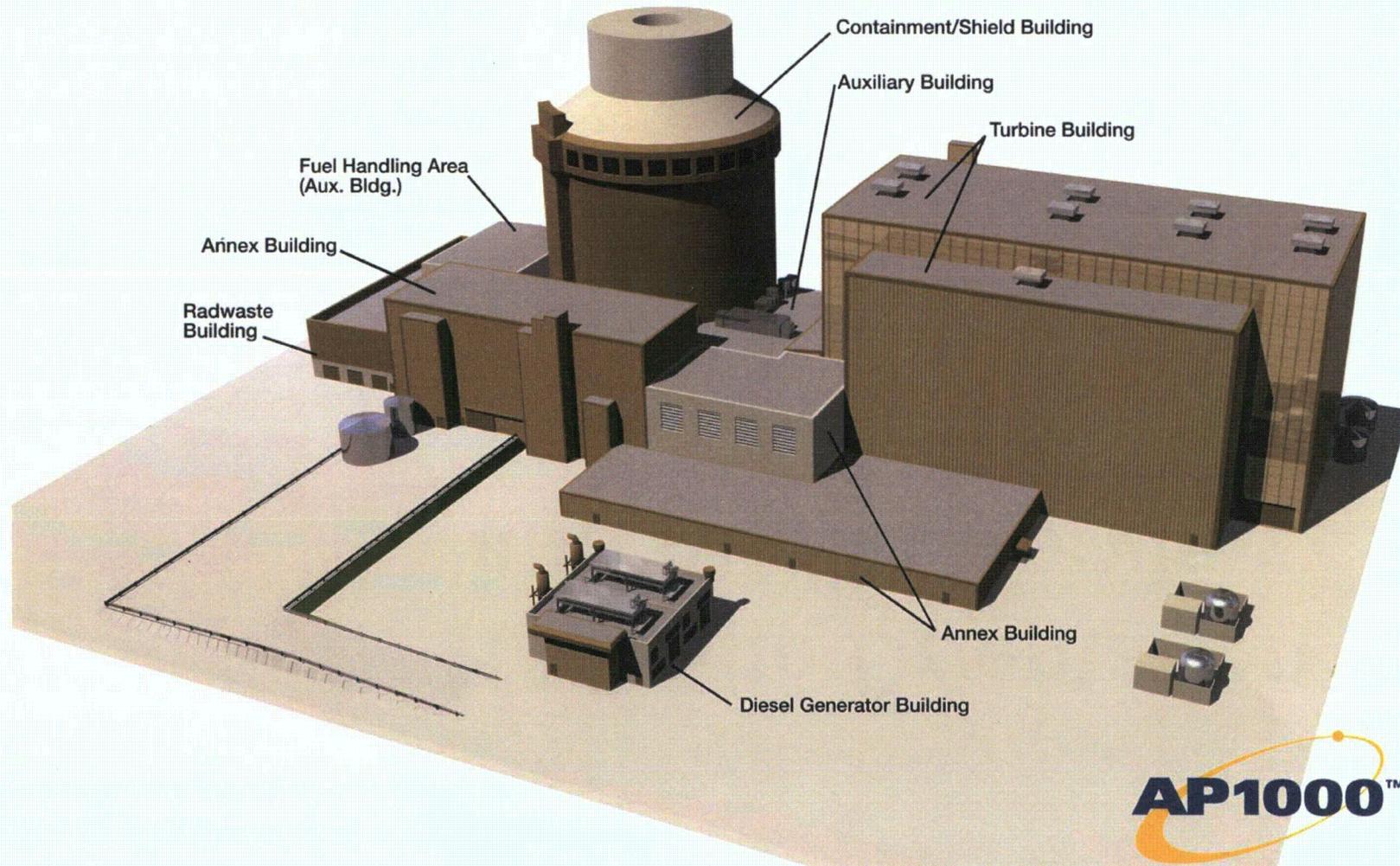
July 14 - 17, 2008



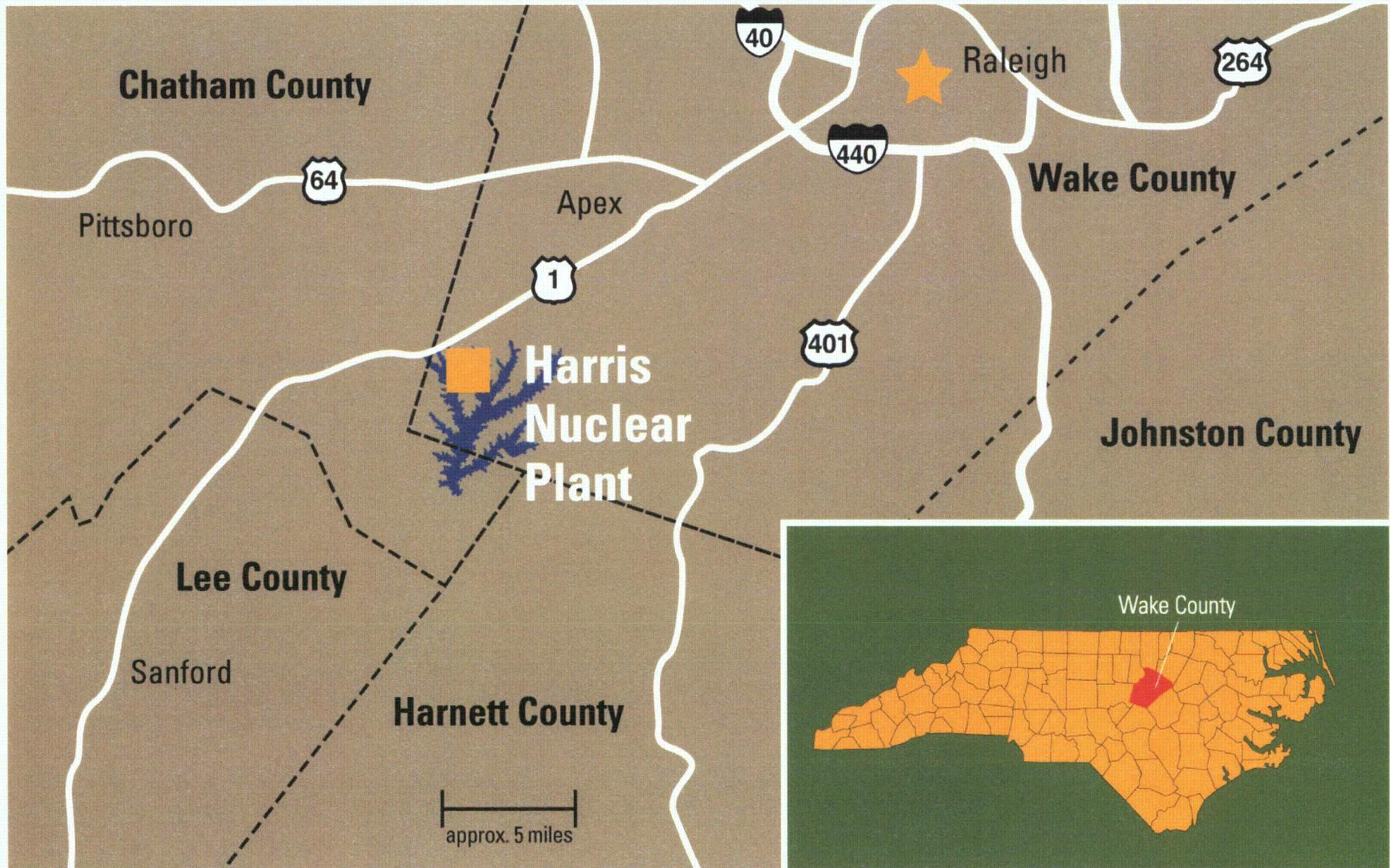
**Progress Energy**

# AP1000 Power Block – Labeled View

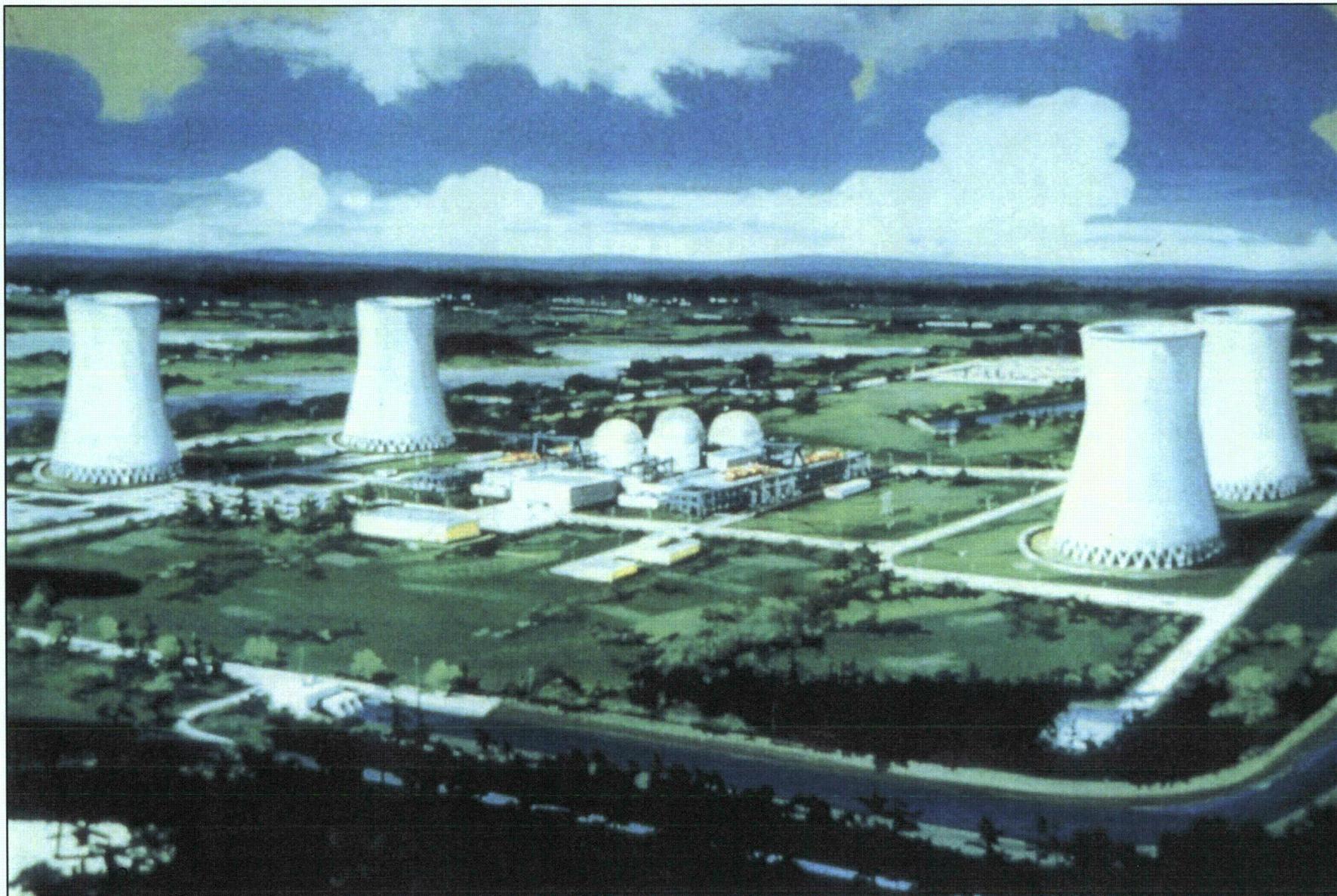
## The Westinghouse AP1000™



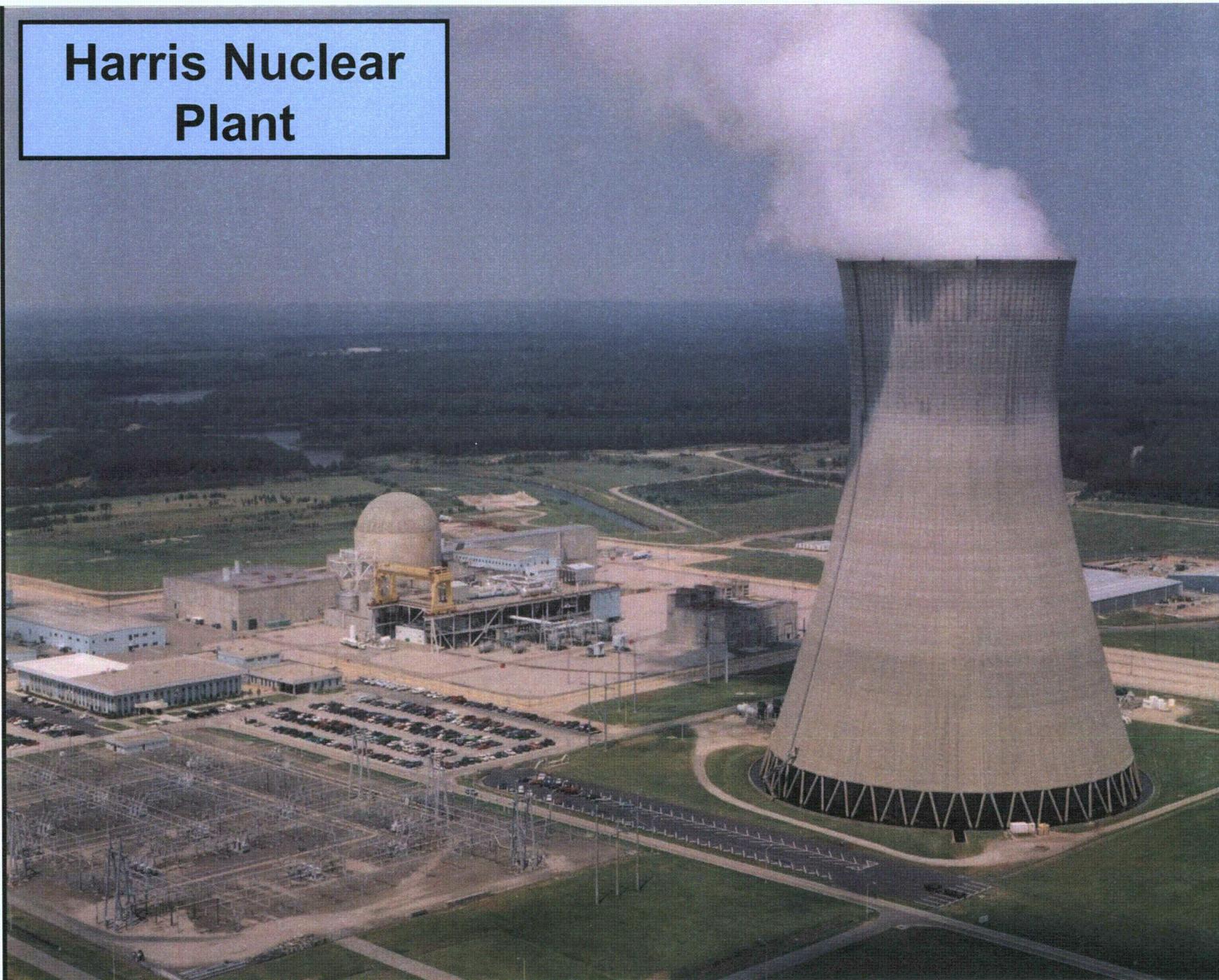
# Harris Nuclear Plant



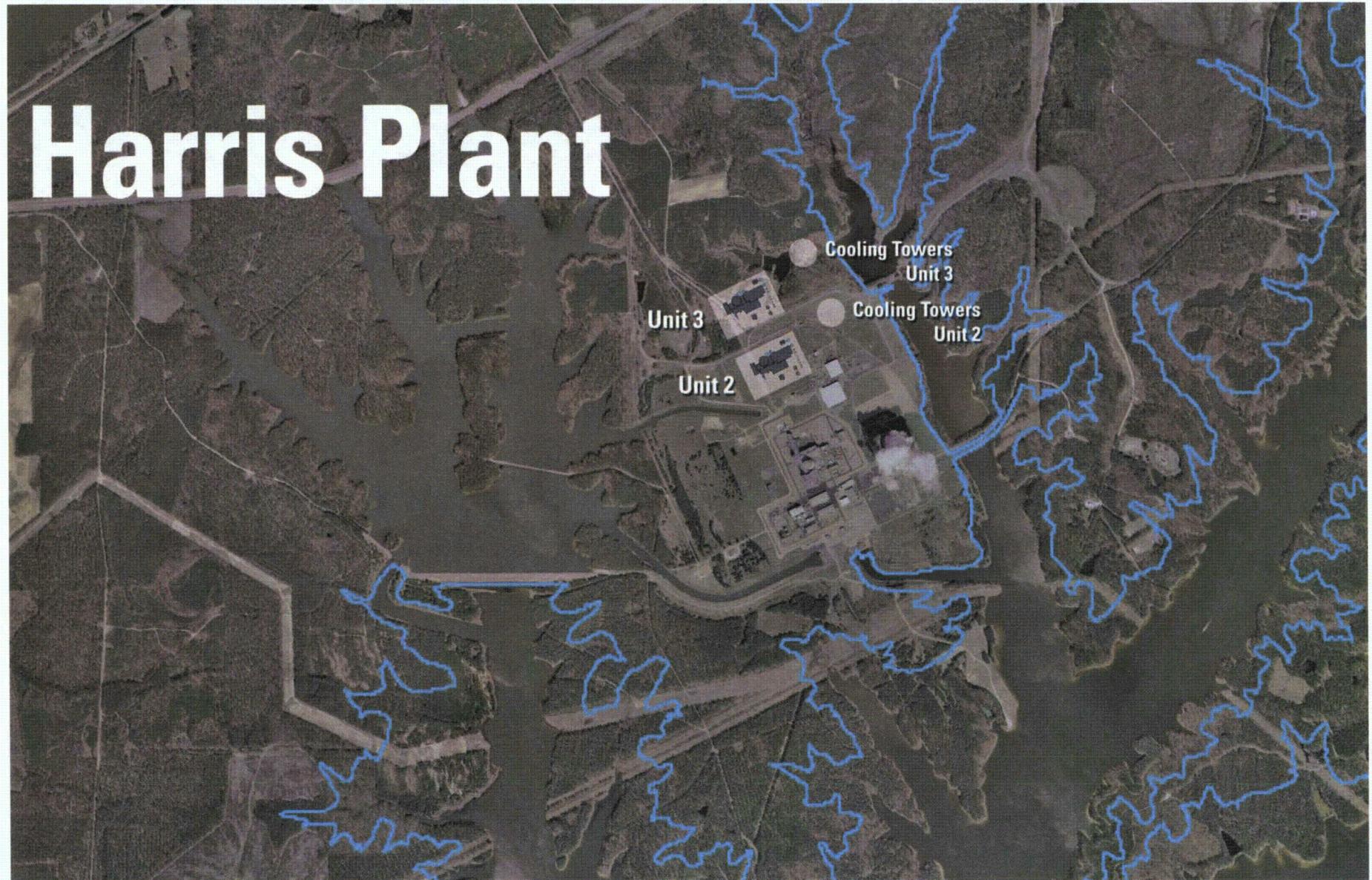
# Harris 1970's Original Concept



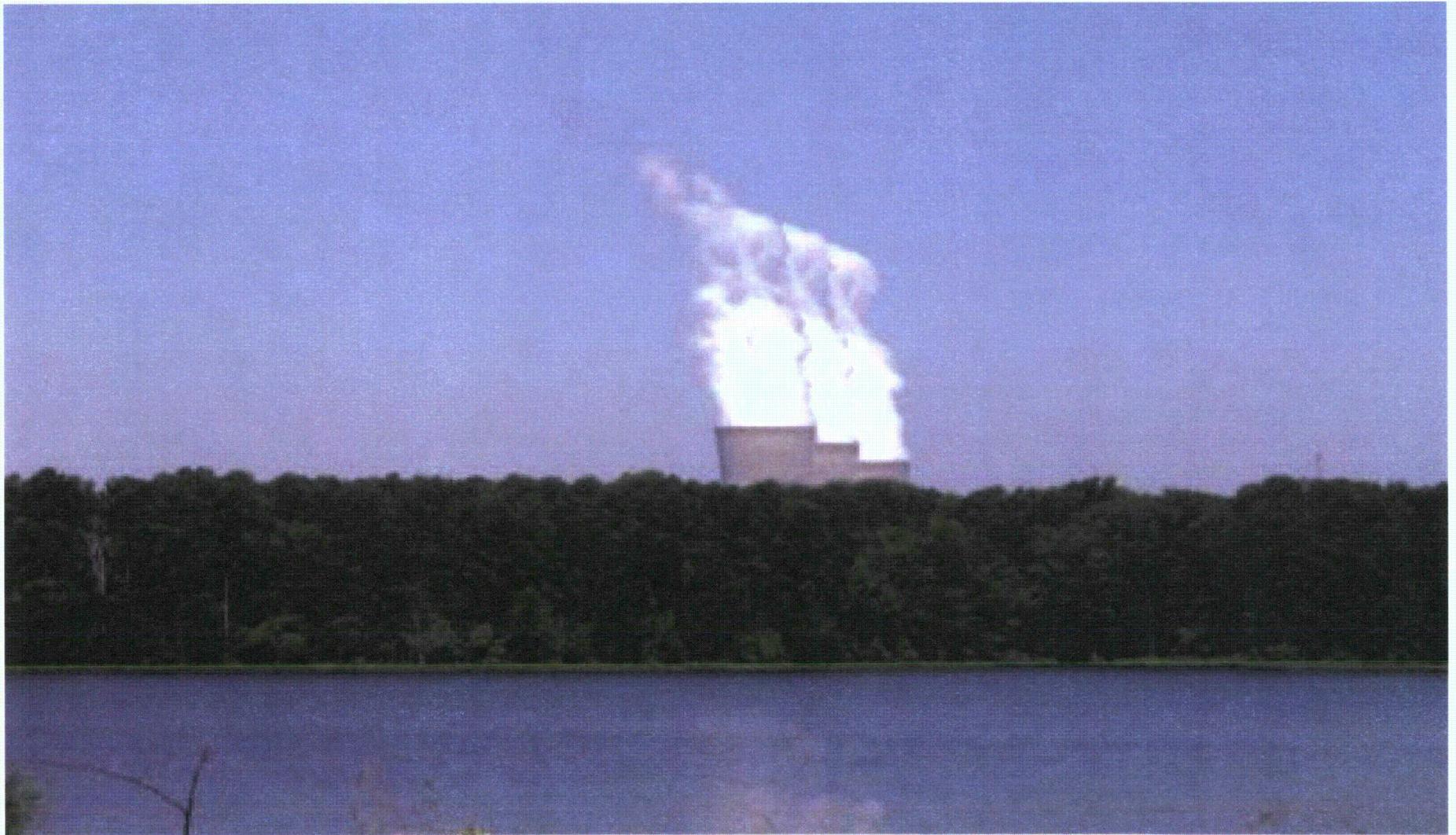
# Harris Nuclear Plant

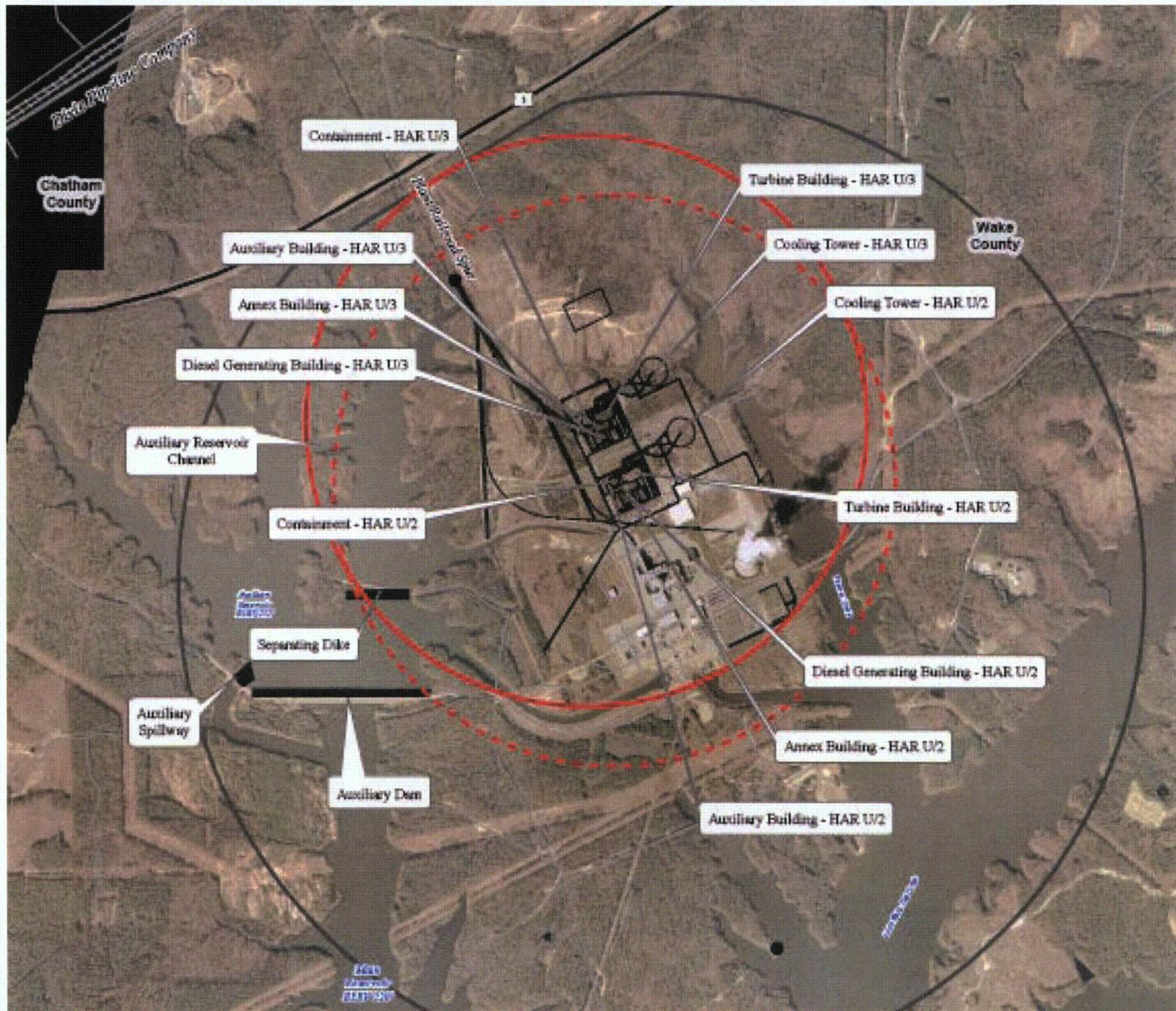


# Site Layout and Lake Expansion

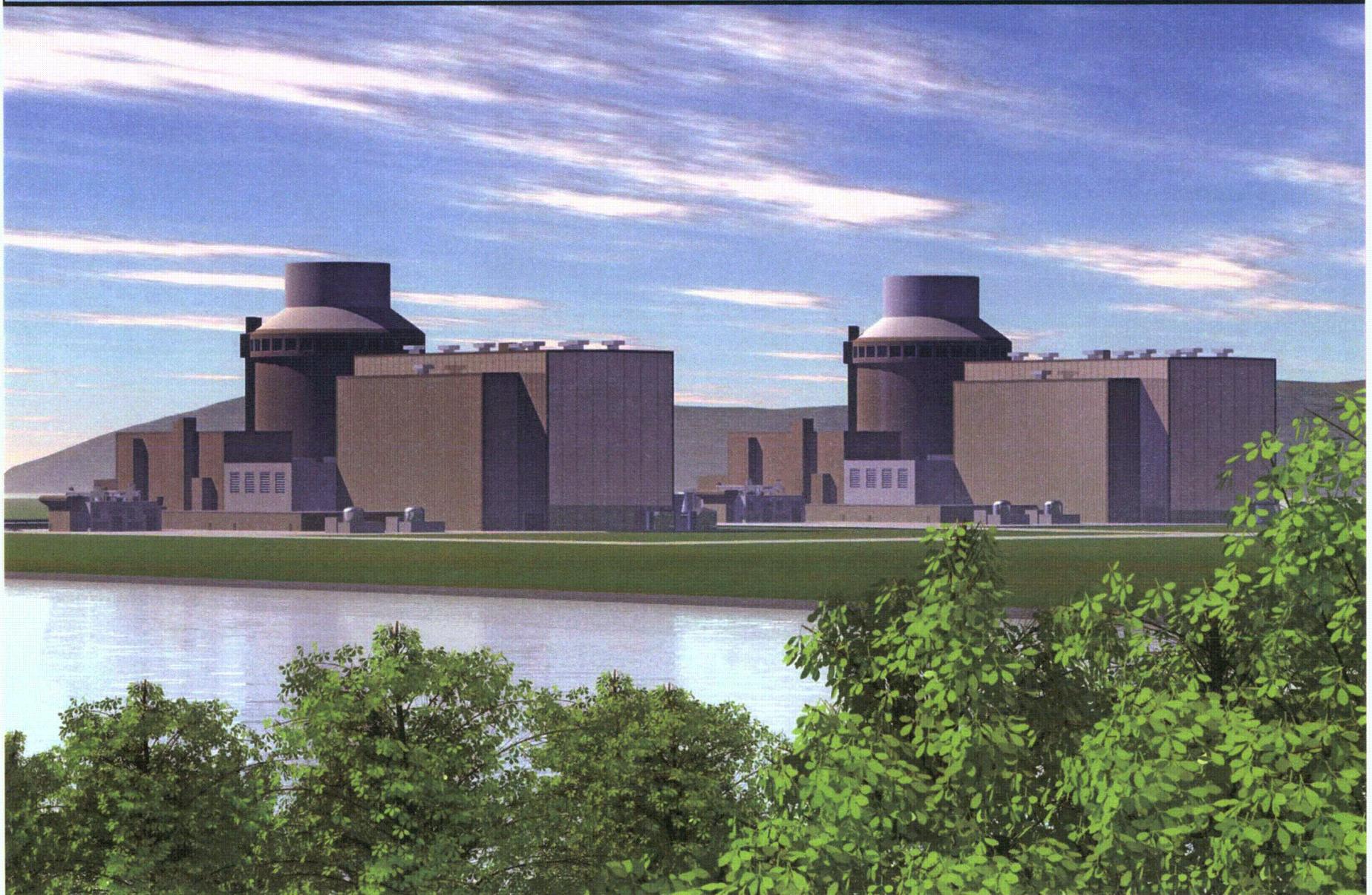


## Conceptual View of 3 Harris Cooling Towers





**Conceptual View  
2 Unit AP1000 Station**



A large, solid red shape on the left side of the page, consisting of a vertical bar that curves inward on its right side.

# **HAR Environmental Report Overview**



**Progress Energy**

## Environmental Costs

- Land Use (about 4000 acres of land will be inundated to raise the lake)
- Forested area changed to lake and shoreline
- Roadways, Wake County Park, Boat Ramps will be modified
- Consumptive Water Use (about 29k gpm)

## Environmental Benefits

- Need for Power satisfied (25,000 new customers annually)
- Air Pollution and Emissions Avoidance
- Transmission environmental impacts minimized over alternatives
- Tax Payments (currently \$7M to \$8M per yr)
- Local and State Economy
  - 3150 construction workers (at peak)
  - 773 employees for operations
- Lake Recreation Opportunities

# Key Environmental Issues

- Raising Water Level of Harris Lake
  - Terrestrial habitat
  - Wetlands and stream habitat
  - Aquatic ecology and water quality
  - Recreation use
  - Infrastructure
- Water Withdrawal from Cape Fear River
  - In-stream flow needs of downstream users/aquatic life
  - Wastewater assimilation
  - Drought and low flow considerations
  - Water quality of Harris Lake

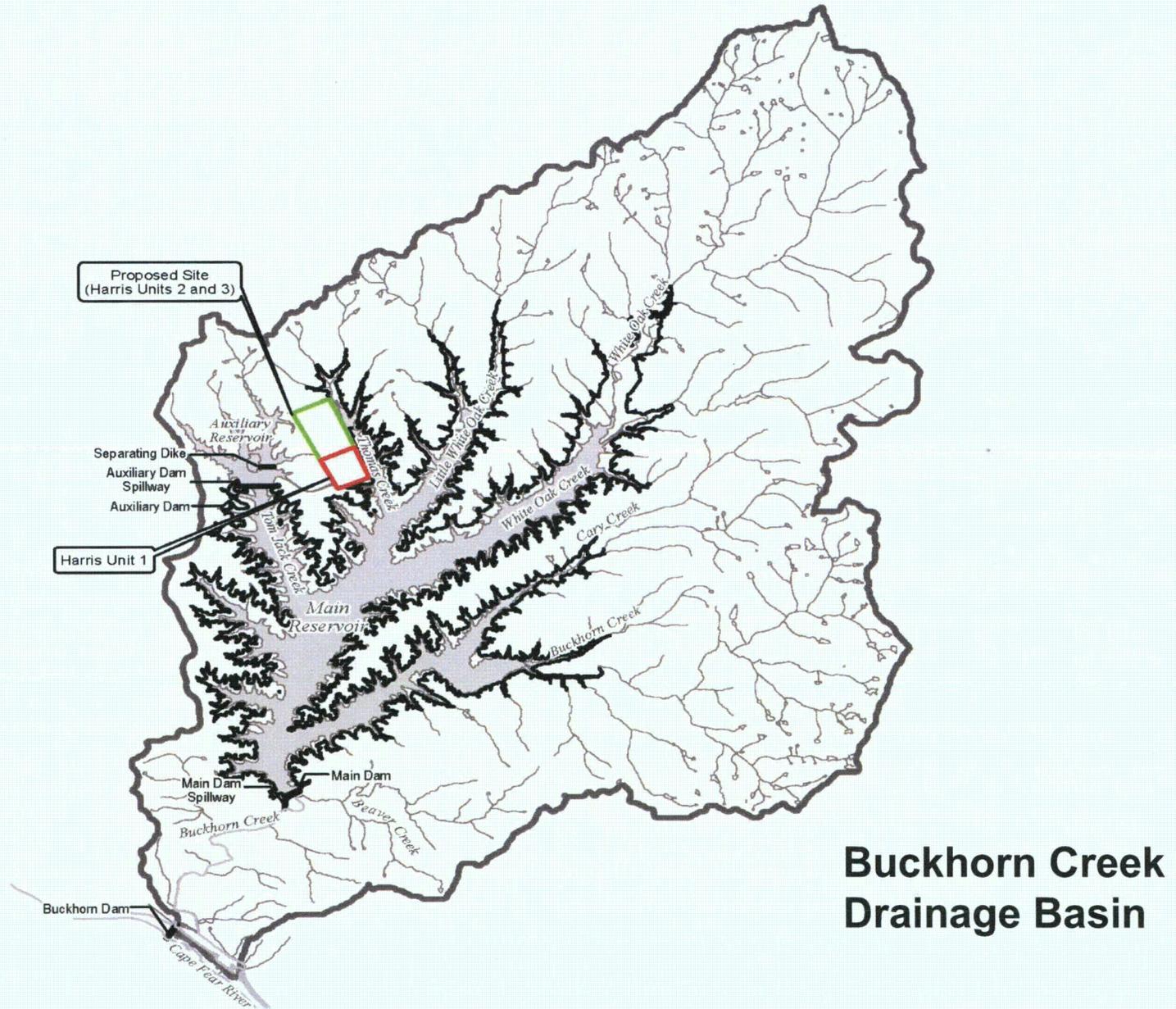
# Raising Water Level of Harris Lake

- Original Plans for Harris included 4 units on a larger lake with make-up from river
- To support operation of HAR Units 2 and 3 propose raising lake level from 220' to 240'
- Infrastructure and ecology impacts include:
  - Boat ramps
  - Wake County Park
  - Roads and bridges
  - Transmission lines
  - Terrestrial, including NCWRC Game Lands
  - Wetlands and stream habitat
  - Aquatic ecology and water quality

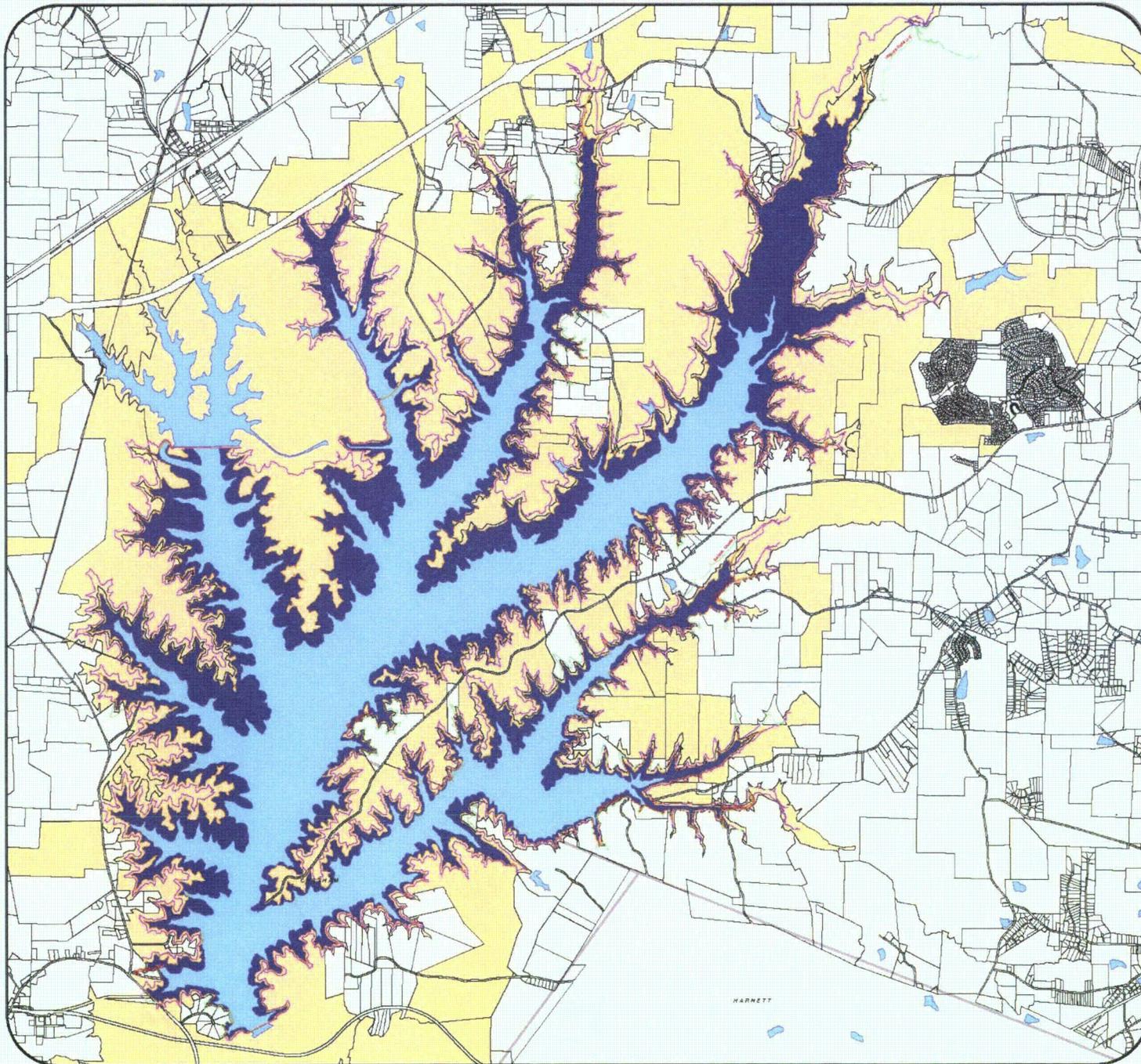
# Harris Lake Main Dam



# Harris Lake Expansion



**Buckhorn Creek  
Drainage Basin**



**SHEARON HARRIS  
NUCLEAR POWER  
PLANT**



**Legend**

- Wake 240 Interact
- Wake 250 Interact
- 250 Project Con Lake Boundary
- Wake PEC parcel selection
- 240 Project Con Lake Boundary
- 240 polygon

**Map Information**  
 WAKE COUNTY GIS  
 SHEARON HARRIS NUCLEAR POWER PLANT  
 WAKE COUNTY GIS  
 Progress Energy

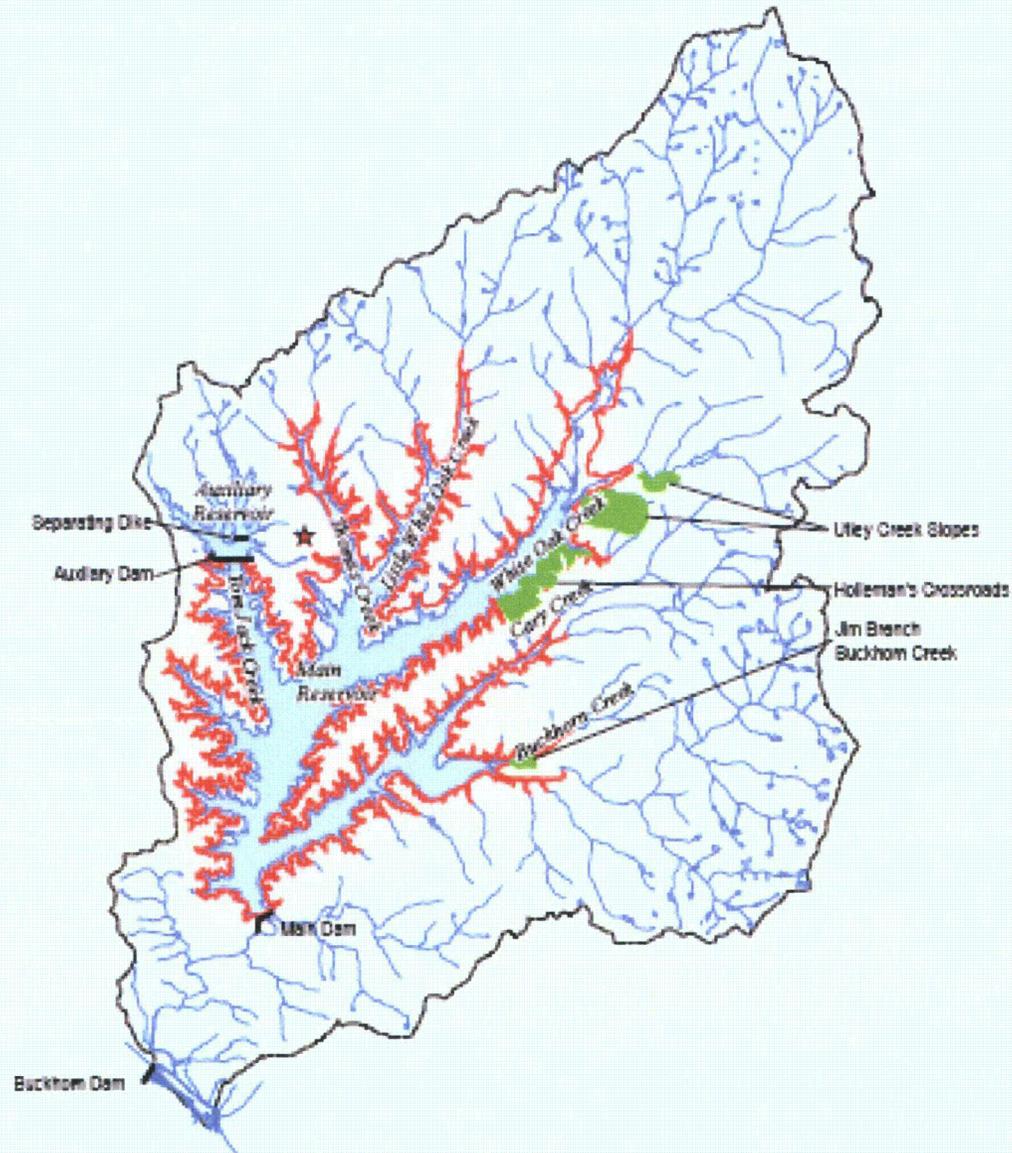
Information provided herein is subject to change without notice. The County assumes no responsibility for errors or omissions. No warranty is made as to accuracy or reliability of the information provided.

WAKE COUNTY GIS  
 SHEARON HARRIS NUCLEAR POWER PLANT  
 WAKE COUNTY GIS  
 SHEARON HARRIS NUCLEAR POWER PLANT

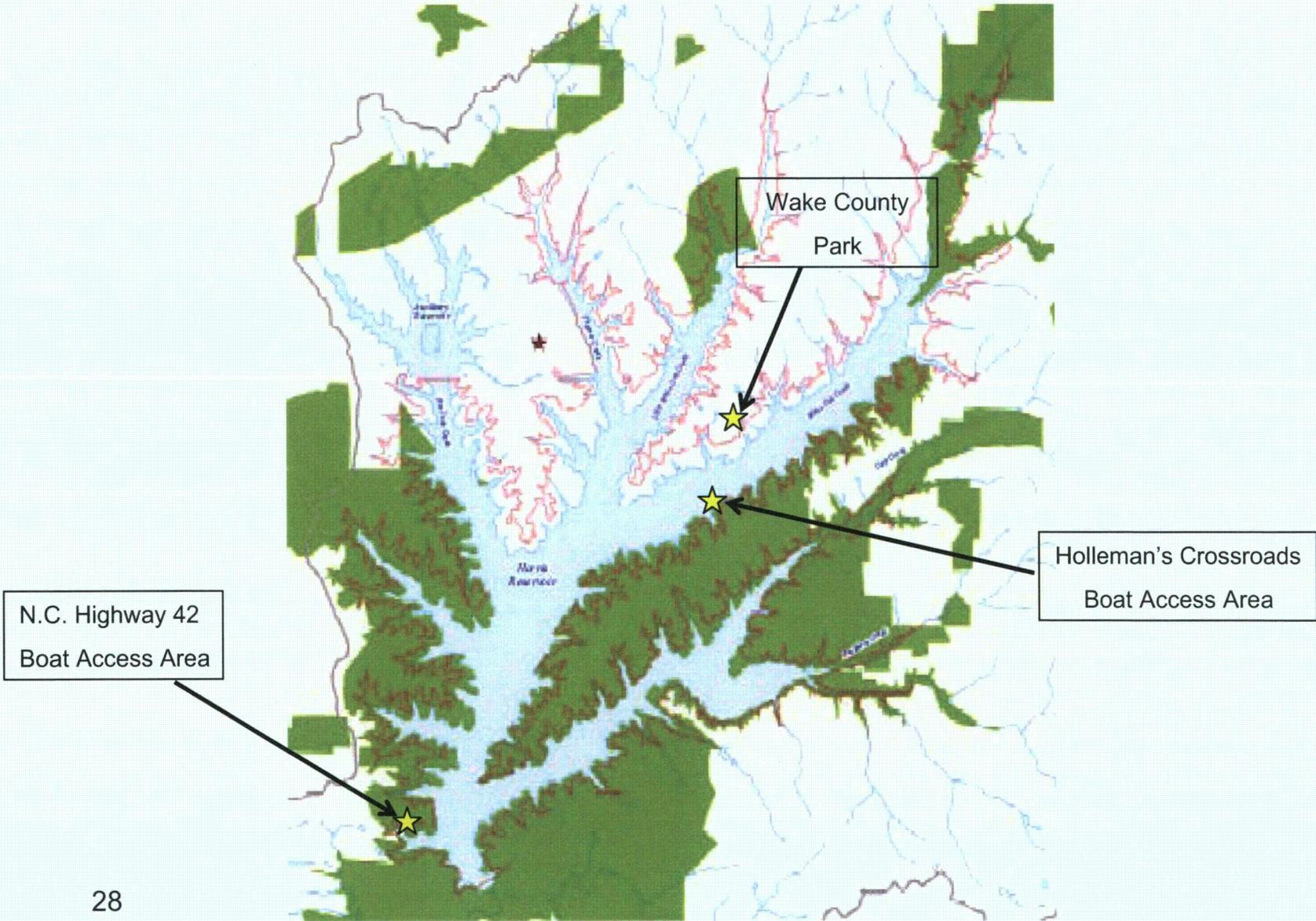
# Effects on Harris Lake County Park



# Significant Natural Areas



# PEC Gamelands and Recreation Access



## Harris Lake Environment

- Harris Lake supports healthy fishery and aquatic community
- Water quality generally good -- very productive with high nutrients
- Harris Lake not 303(d) impaired
- Lake gets significant amount of recreational use

## Harris Lake Environment (continued)

- Diverse aquatic and terrestrial communities
- No significant RTE species in the lake or lake terrestrial perimeter (except bald eagles)
- Some significant terrestrial natural areas present

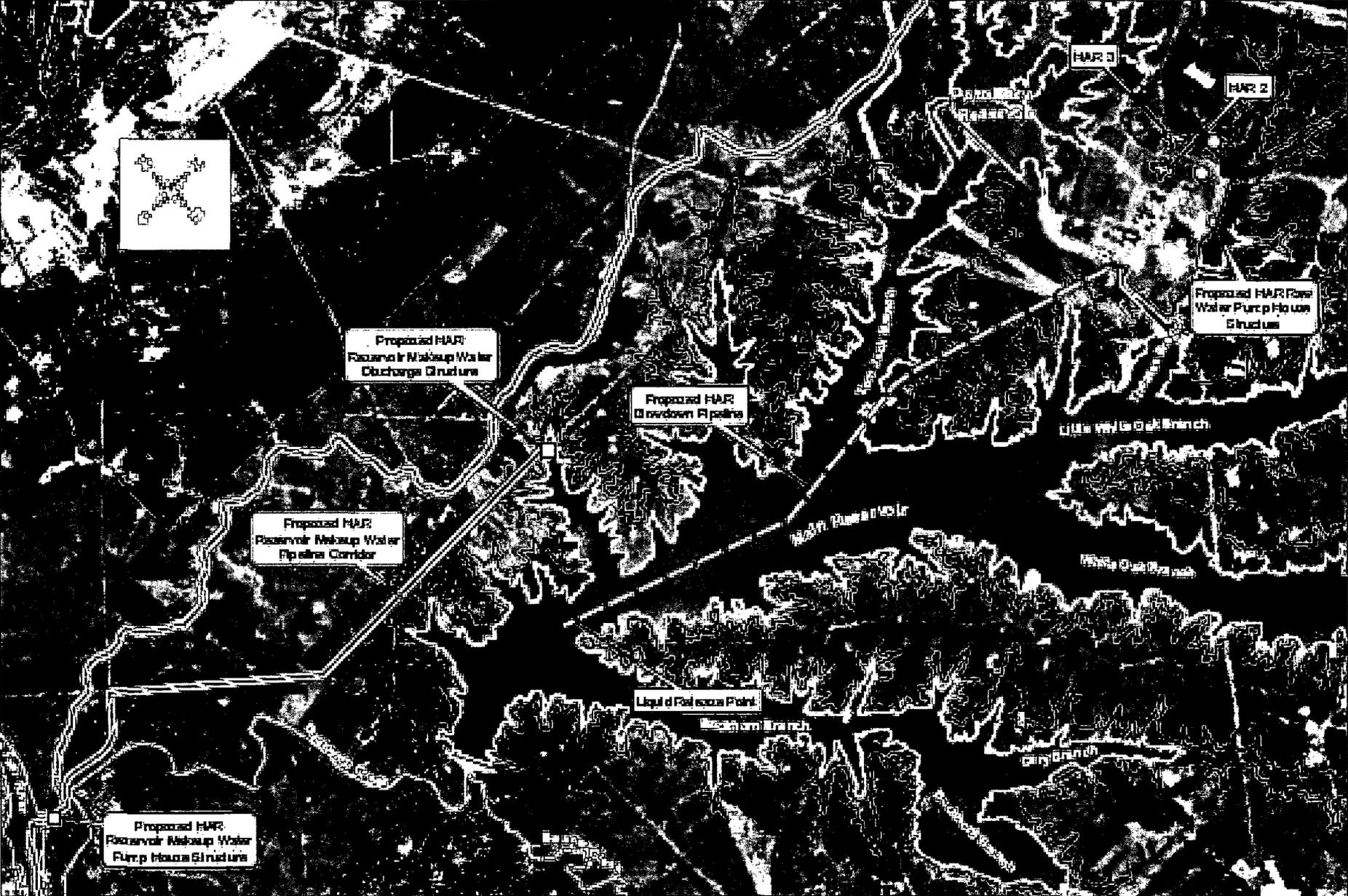
## Proposed HAR Water Needs

- Harris Lake will be raised 20 feet to increase reservoir storage capacity
- Make-up water capacity from Cape Fear planned for 60,000 gpm (~134 cfs)
- Net consumptive usage for 2 new reactors is ~29,000 gpm (~64 cfs)
- Anticipated minimum instream flow needs of ~20 cfs from Harris Dam to Buckhorn Creek

# Water Consumptive Demand Considerations

- Design reservoir capacity accounts for drought conditions during operation of reactors
  - 20 ft provides storage capacity to operate plants with no net river water withdrawals during extreme drought conditions
  - Water withdrawal operation strategy will allow pumping during normal or above flow river conditions and reduced pumping during low flow conditions
  - Had the existing plant and the two new plants that we are proposing been in operation, we could have operated at full power throughout the entire drought period without impact to water use in the Carolinas by using the stored capacity that the higher lake level will provide.
- Consideration of downstream in-stream flow needs in operational design
- Possible Use of Western Wake WRF effluent

# Lake Makeup and Cooling Tower Blowdown



# Proposed Make-Up Water Line

