



PUBLIC MEETING

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR WILLIAM STATES LEE III NUCLEAR STATION UNITS 1 AND 2 COMBINED LICENSES APPLICATION

January 19, 2012
Gaffney, South Carolina

William F. Burton, Branch Chief
Sarah Lopas, Environmental Project Manager
Richard Darden, U.S. Army Corps of Engineers

U.S. Nuclear Regulatory Commission

- NRC's mission:
 - Protect public health and safety;
 - Promote common defense and security;
 - Protect the environment.
- The NRC is an independent agency.
- The NRC has over 30 years of experience regulating operating reactors and other civilian uses of nuclear materials.



Source: U.S. NRC



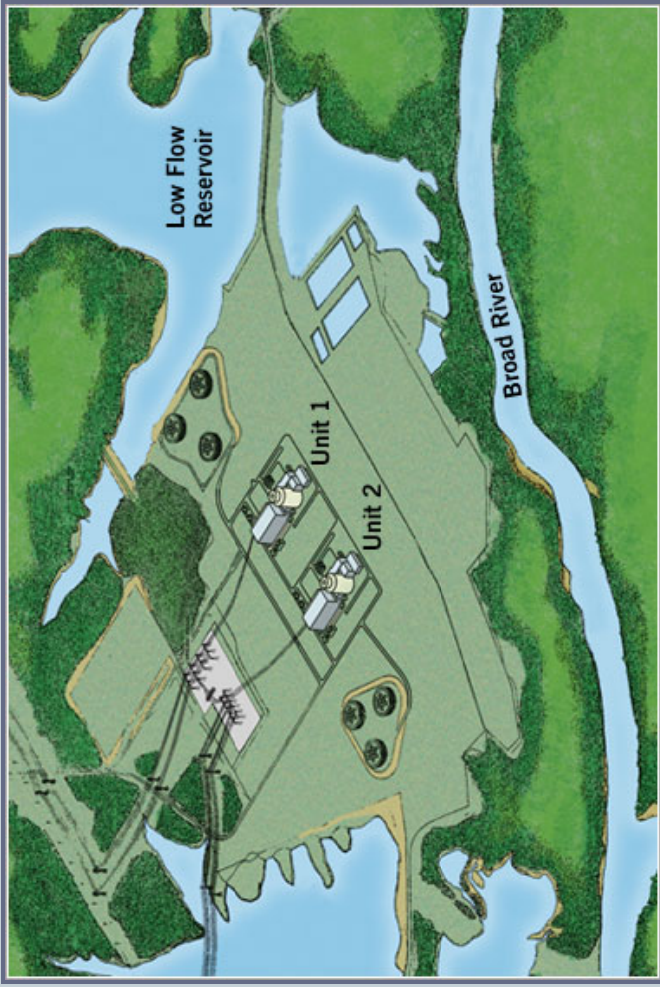
Meeting Purposes



- Describe the NRC's environmental review process.
- Provide the environmental review schedule from today forward.
- Share NRC's preliminary findings and recommendation with you.
- Describe how you can provide comments.
- **Listen to and gather your comments.**

Application for Combined Licenses

- Duke applied for combined licenses (COLs) for the William States Lee III Nuclear Station Units 1 and 2 in December 2007.
- Duke submitted the Make-Up Pond C supplemental environmental report in September 2009.
- COLs would give Duke permission to build and operate two AP1000 reactors at the Lee Nuclear Station site.
 - The AP1000 reactor design was approved by the Commission on 12/22/2011.
- Two concurrent reviews for the COL application – safety and environmental.



Proposed Lee Nuclear Station Site Layout (Source: Duke ER 2009)

Environmental Review

- The NRC is the lead agency, and the U.S. Army Corps of Engineers, Charleston District, is a cooperating agency in the preparation of the environmental impact statement (EIS).
- The NRC and USACE review team:
 - Reviewed Duke's environmental report and Make-Up Pond C supplemental report;
 - Asked 224 Requests for Additional Information;
 - Held audits at Lee Nuclear Station, Make-Up Pond C, alternative sites, and Duke's headquarters in May 2008, August 2010, and June 2011; and
 - Consulted Federal, State, Tribal, and local agencies.



Draft Environmental Impact Statement for William States Lee III Nuclear Station Units 1 and 2

Richard L. Darden, Ph.D.
Regulatory Division
U.S. Army Corps of Engineers
Charleston District

January 19, 2012



US Army Corps of Engineers
BUILDING STRONG®



U.S. Army Corps of Engineers

Regulatory Role and Authority

- USACE is the Federal agency responsible for administering Section 404 of the Clean Water Act.
- USACE regulates the discharge of dredged or fill material into virtually all waters of the United States.
- USACE permit decisions are “Federal actions” and must comply with the National Environmental Policy Act (NEPA).

Cooperating Agency Status



- NRC is serving as the “Lead Agency” in the preparation of the EIS for the Lee Nuclear Station.
- USACE is serving as a “Cooperating Agency” in the preparation of this EIS.
- The final EIS will serve as the environmental document on which USACE permit decisions will be based for this proposed project.

Public Participation with USACE



- Public involvement and participation are important to USACE and are critical to EIS preparation.
- Comments on the draft EIS received at this meeting and during the remainder of the comment period (through March 6, 2012) will be considered in the preparation of the final EIS and subsequent permit decisions.

Proposed Impacts to Waters of the U.S.



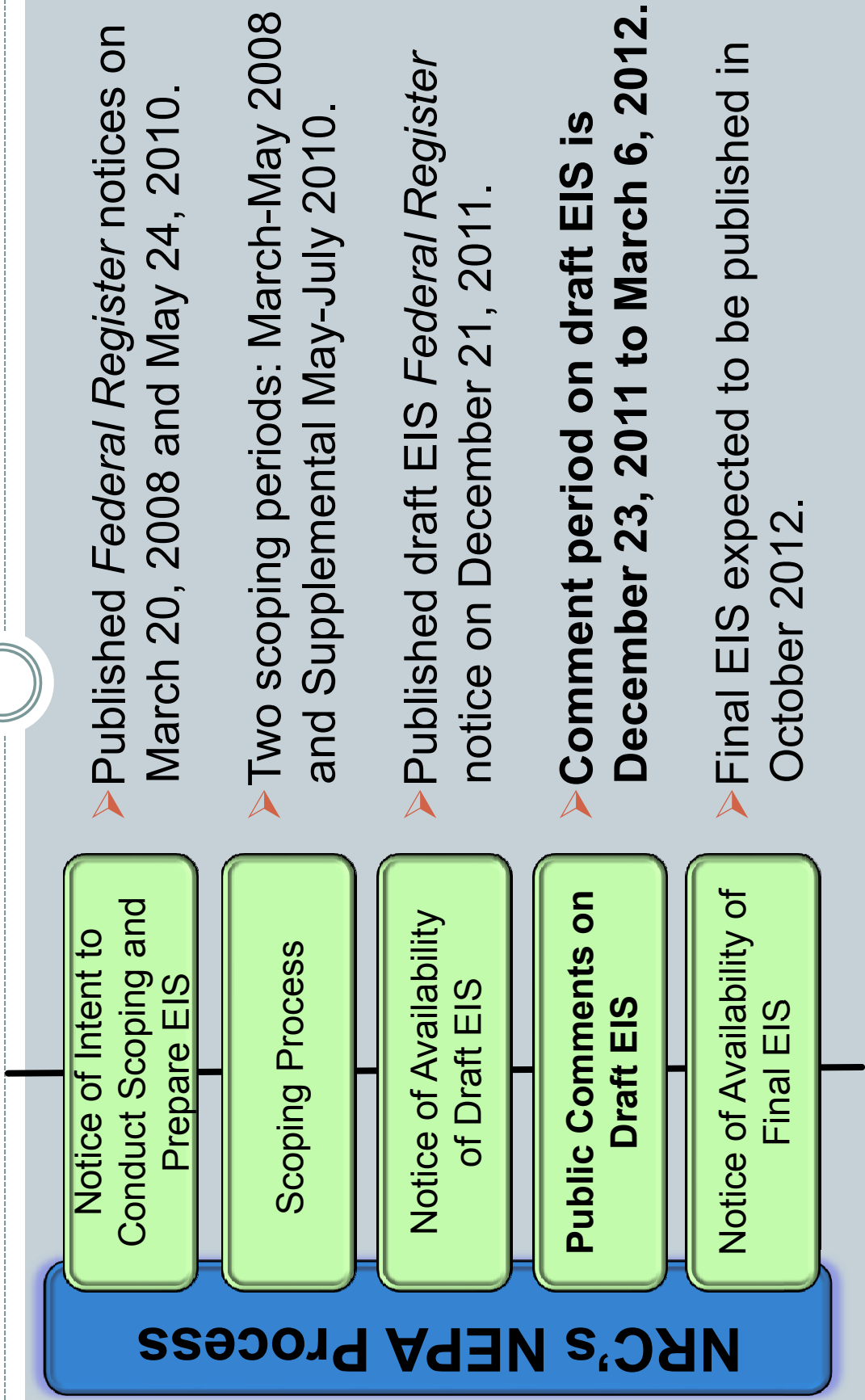
- Lee Nuclear Station Site
 - Streams: none
 - Wetlands: 0.21 acre
 - Open Waters: 12.05 acres
- Make-Up Pond C
 - Streams: 65,977 linear feet
 - Wetlands: 3.66 acres
 - Open Waters: 17.58 acres
- Transmission Lines, Pipelines, and Railroad Spur
 - Streams: 1,308 linear feet
 - Wetlands: 1.57 acres
 - Open Waters: none

USACE Permit Decisions



- Permit application submitted by Duke in November 2011 is currently available on USACE Public Notice.
- USACE Public Notice is available at http://www.sac.usace.army.mil/assets/pdf/regulatory/publicnotices/PNs20111216/SAC-2009-122-SIR_Cherokee.pdf.
- USACE permit decision on the proposed nuclear project will likely precede NRC combined licenses decision, but will be made after the final EIS has been completed.

Environmental Review Process

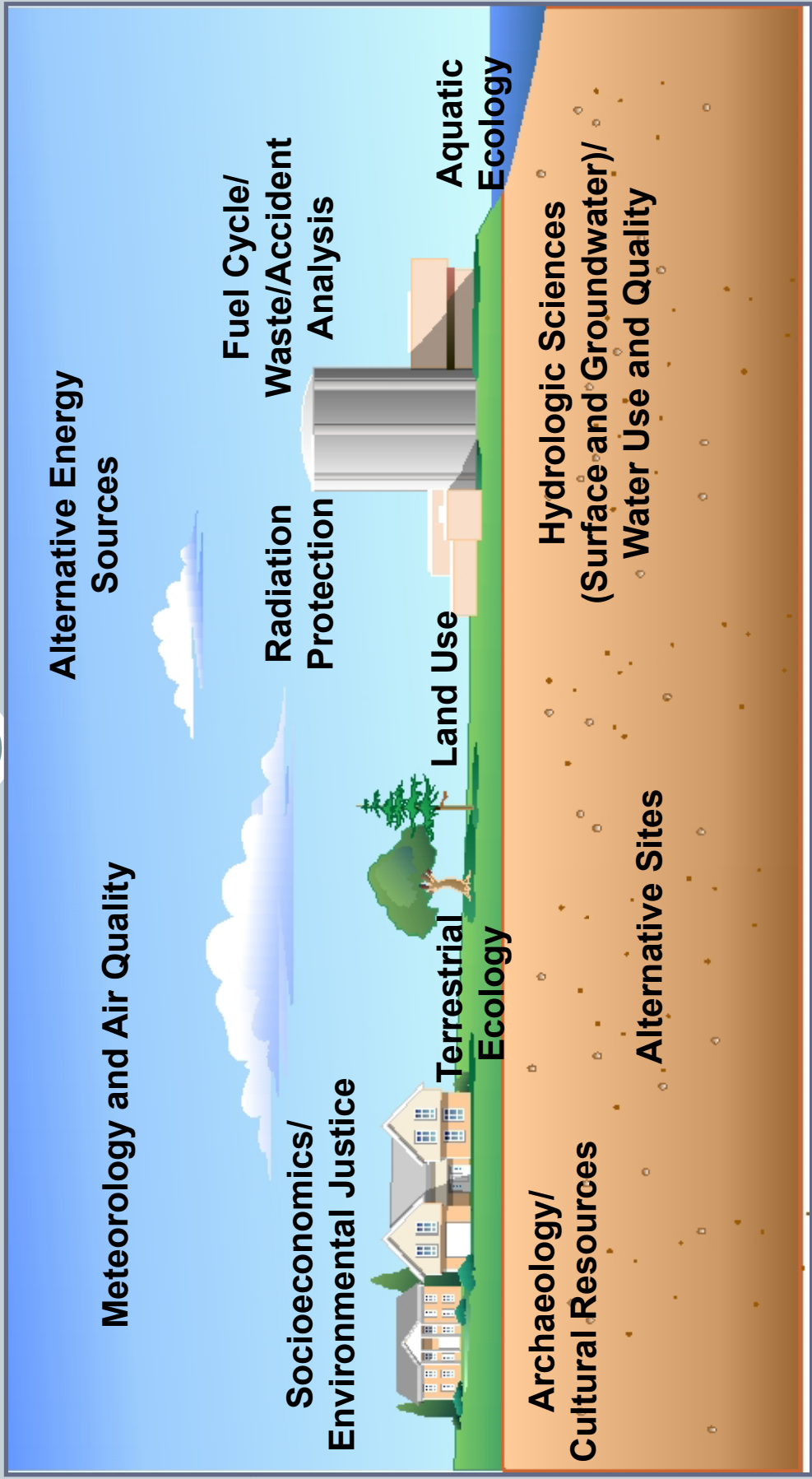


Organization of EIS



- Chapter 1 – Introduction
- Chapter 2 – Affected Environment
- Chapter 3 – Site Layout and Plant Description
- Chapter 4 – Construction Impacts
- Chapter 5 – Operation Impacts
- Chapter 6 – Fuel Cycle, Transportation, and Decommissioning Impacts
- Chapter 7 – Cumulative Impacts
- Chapter 8 – Need for Power
- Chapter 9 – Environmental Impacts of Alternatives
- Chapter 10 – Conclusions and Recommendation
- References
- Appendices A – J (Scoping Comments are in Appendix D)

Resource Areas



Source U.S. NRC

How Impacts are Quantified



NRC has established three levels of impacts:

SMALL: Effect is not detectable, or so minor it will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE: Effect is sufficient to alter noticeably, but not destabilize, important attributes of the resource.

LARGE: Effect is clearly noticeable and sufficient to destabilize important attributes of the resource.

Duke Water Management Plan



Duke’s water management plan would ensure Broad River flows do not fall below 483 cubic feet per second (cfs).

Broad River Flows (cfs)	Water Source
Greater than 538 cfs	All water withdrawn from Broad River
Between 538 and 483 cfs	Consumptive water needs withdrawn proportionally from Ponds B then C
Less than 483 cfs	All consumptive water needs withdrawn from Ponds B then C



Broad River (Source: PNNL 2010)

Surface Water Resource Impacts

- Under normal conditions, Lee Nuclear Station would withdraw 78 cfs or about 4% of Broad River mean annual flow; consumptive use would be 55 cfs or about 3% mean annual flow.
- To comply with Clean Water Act regulations, Duke would only refill Ponds B and C July through February, and Broad River flows would not fall below 483 cfs.
- Review team concluded surface water impacts would be **SMALL**.



Make-Up Pond B (Source: PNNL 2010)

Ecological Impacts

- Evaluated impacts on birds, fish, wildlife, plants, and wetlands on the Lee Nuclear Station site and vicinity, including Make-Up Pond C.
- Consulted with SC Dept. of Natural Resources and U.S. Fish and Wildlife Service.
- Concluded that impacts to terrestrial and aquatic ecology would be MODERATE for building and SMALL for operations.
- Building impacts would be dominated by the loss of terrestrial and aquatic habitat from development of Make-Up Pond C.



London Creek
(Source: PNNL 2010)



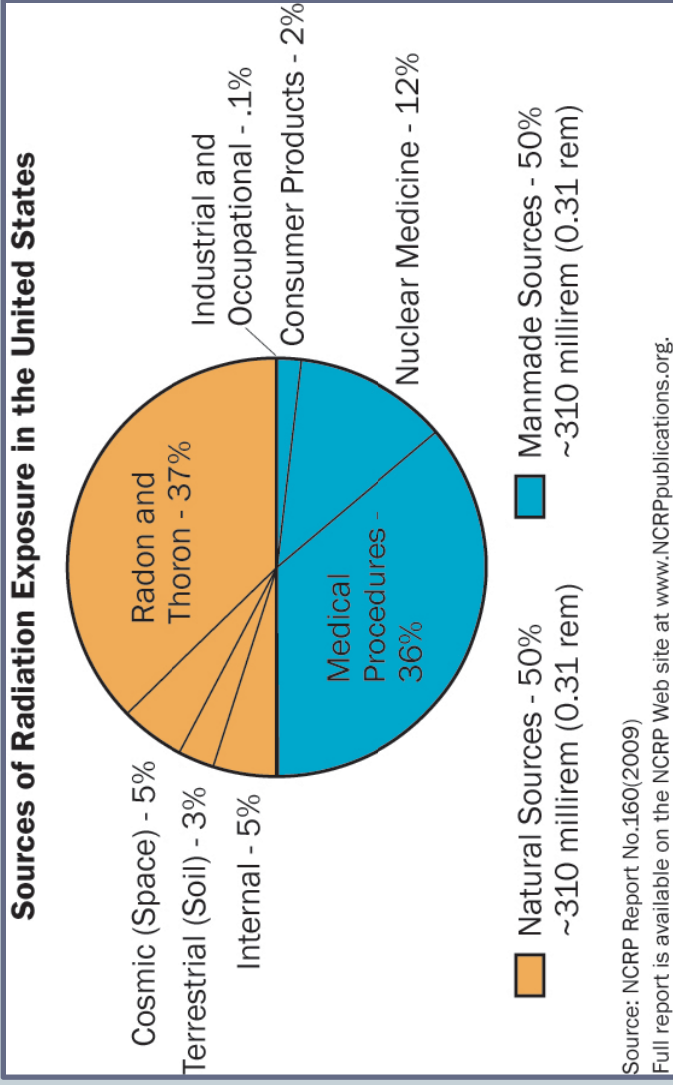
Georgia aster
(Source: Gardening-by-State.com 2012)



Part of Make-Up Pond C Site (Source: PNNL 2010)

Radiological Impacts

- Analysis includes impacts on construction workers, members of the public, plant workers, and wildlife.
- Doses to workers and members of the public would be within regulatory limits and impacts would be SMALL.
- Doses to wildlife would also be below relevant guidelines and impacts would be SMALL.
- Population dose from normal operations would be a small fraction of the population dose from natural sources of radiation.



Cumulative Impacts

- Cumulative impacts could occur when impacts from the proposed action are combined with effects from other past, present, and reasonably foreseeable future projects or actions.
 - Examples include:
 - Operating nearby nuclear plants (Catawba, McGuire, Summer Unit 1)
 - Proposed Summer Units 2 and 3
 - Proposed Cliffside Steam Station Unit 6
 - Existing hydroelectric facilities on the Broad River and its tributaries
 - Various small manufacturing facilities discharging wastewater into the Broad River
 - Cumulative adverse impacts ranged from SMALL to MODERATE, with MODERATE impacts to land use, surface-water use, terrestrial and aquatic ecology, cultural and historic resources, traffic, and greenhouse gas emissions.

Energy and Site Alternatives

Energy Alternatives

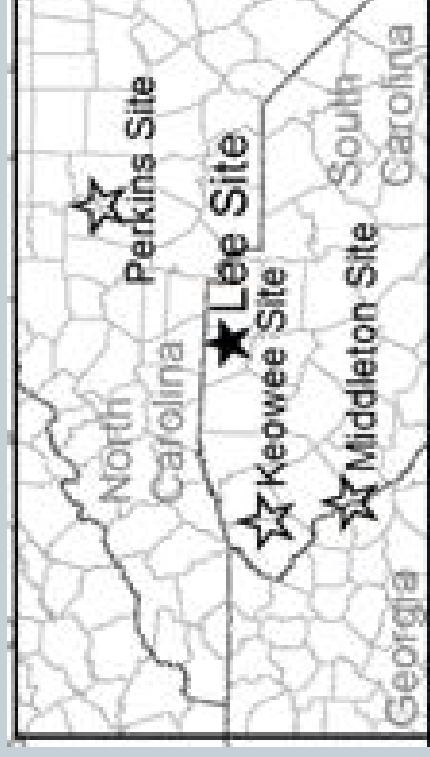
- Coal, natural gas, combination of alternatives (energy efficiency + renewables + natural gas).
- None of the feasible alternatives would be environmentally preferable.

Alternative Sites

- Perkins – near Salisbury, NC
- Keowee – near Clemson & Seneca, SC
- Middleton Shoals – near Iva, SC
- None of the alternative sites would be environmentally preferable to the Lee Nuclear Station site.



(Source: U.S. DOE)



Alternative Sites (Source: PNNL, EIS Fig. 9-2)

System Design Alternatives

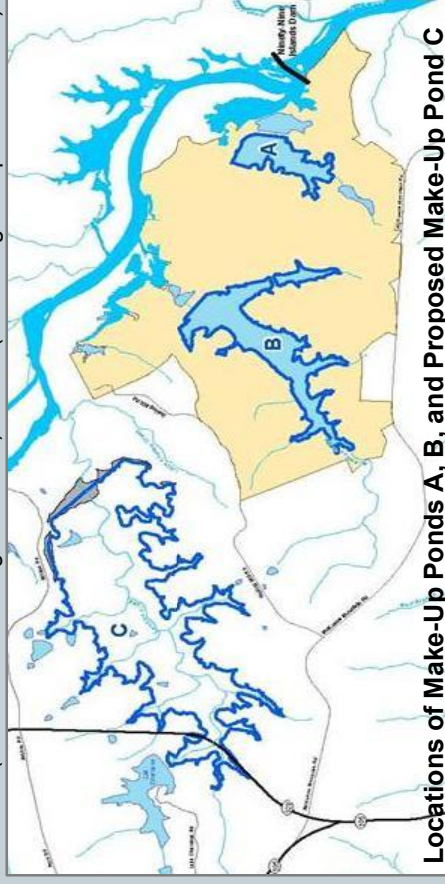


- Heat-Dissipation System Alternatives
 - Natural draft cooling towers, once-through cooling, cooling ponds, spray canals, dry towers, hybrid cooling towers, mechanical draft with plume abatement.
- Circulating-Water System Alternatives
 - Intake and discharge alternatives.
 - Water supply alternatives, including water reuse, use of groundwater, and the expansion of Make-Up Pond B.



Mechanical Draft Cooling Towers
(Source: wetcooling.com 2011)

Natural Draft Cooling Tower
(Source: globalspec.com 2011)



Locations of Make-Up Ponds A, B, and Proposed Make-Up Pond C

(Adapted from Duke Supp. ER, Fig. 2.3-30)

Preliminary Recommendation

- The NRC staff's preliminary recommendation to the Commission is that the combined licenses be issued.
- Based on Duke's environmental report; consultation with Federal, State, Tribal, and local agencies; the staff's independent review; public comments; and assessments summarized in the draft EIS.
- None of the feasible alternative energy sources nor alternative cooling systems evaluated would be environmentally preferable to the proposed plant.
- None of the alternative sites would be environmentally preferable to the Lee Nuclear Station site.

Access to the Draft EIS



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www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr2111



(Source: Cherokee County Public Library 2011)

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Submitting Comments on Draft EIS



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www.regulations.gov – Docket Number *NRC-2008-0170*



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Washington DC, 20555-0001



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COMMENTS ARE DUE BY MARCH 6, 2012