

## **Appendix E**

### **Carolina Power & Light Company's Compliance Status and Consultation Correspondence**

## Appendix E

### Carolina Power & Light Company's Compliance Status and Consultation Correspondence

Correspondence between Federal and State Agencies and Carolina Power & Light Company (CP&L), currently operating as Progress Energy Carolina, Inc., and between the U.S. Nuclear Energy Commission (NRC) during the evaluation process of the application for renewal of the operating licenses (OLs) for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) is listed in Table E-1. Copies of the correspondence are included at the end of this appendix.

Federal permits, licenses, approvals, and other entitlements which must be obtained for renewal of the BSEP OLs are listed in Table E-2.

**Table E-1.** Consultation Correspondence Regarding License Renewal for BSEP Units 1 and 2

Source	Recipient	Date of Letter	Page No.
North Carolina Department of Environment and Natural Resources (NCDENR), Division of Parks and Recreation (Harry E. LeGrand, Jr.)	CP&L (Edward T. O'Neil)	May 21, 2003	E-4
U.S. Fish and Wildlife Service (FWS) (Dr. Garland Pardue)	CP&L (Edward T. O'Neil)	July 15, 2003	E-6
NCDENR, Division of Coastal Management (Doug Huggett)	NRC (Richard Emch)	December 7, 2004	E-8
NRC (Pao-Tsin Kuo)	FWS (Sam D. Hamilton)	December 29, 2004	E-23
NRC (Pao-Tsin Kuo)	NOAA Fisheries (Patricia A. Kurkul)	December 29, 2004	E-27
NRC (Pao-Tsin Kuo)	State Historic Preservation Office (Dr. Jeffrey Crow)	December 30, 2004	E-29

## Appendix E

Table E-1. (contd)

Source	Recipient	Date of Letter	Page No.
NRC (Pao-Tsin Kuo)	Advisory Council on Historic Preservation (Don Klima)	December 30, 2004	E-33
NRC (Pao-Tsin Kuo)	Tribal Council of Lumbee Tribe (Leon Jacobs)	December 30, 2004	E-34
NRC (Pao-Tsin Kuo)	Waccamaw Siouan (Archie Ray Jacobs)	December 30, 2004	E-37
FWS (Pete Benjamin)	NRC (Pao-Tsin Kuo)	February 3, 2005	E-40
NRC (Pao-Tsin Kuo)	FWS (Sam D. Hamilton)	March 17, 2005	E-44
NRC (Pao-Tsin Kuo)	FWS (Sam D. Hamilton)	August 8, 2005	E-47
NRC (Pao-Tsin Kuo)	NOAA's National Marine Fisheries Service (David Bernhart)	August 9, 2005	E-81
NOAA (NMFS) (Roy E. Crabtree)	NRC (Pao-Tsin Kuo)	September 19, 2005	E-103

**Table E-2.** Federal Permits, Licenses, and Other Entitlements Related to Renewal of the BSEP OLS

Agency	Authority	Requirement	Remarks
NRC	Atomic Energy Act (42 USC 2011 et seq.); 10 CFR Parts 2, 50, and 51	Requirements for submitting license renewal applications	The CP&L application is online at <a href="http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html">http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html</a> .
FWS; National Oceanic and Atmospheric Administration (NOAA) Fisheries	Section 7 of the Endangered Species Act; 16 USC 1536	Requires a Federal agency to ensure that its actions are not likely to jeopardize the continued existence of any endangered or threatened species of any critical habitat for such species.	Consultation correspondence with the FWS and NOAA Fisheries is included in this Appendix E.
NRC; NCDENR	Section 401 of the Clean Water Act; 33 USC 1341	Applicants for a Federal license to conduct an activity which may result in discharges to navigable waters are to provide the licensing agency a certification from the state that the discharge will comply with the Clean Water Act.	Section 4.2.1.1 of the Generic Environmental Impact Statement states that issuance of an National Pollutant Discharge Elimination System (NPDES) permit by a state water quality agency implies certification under section 401 of the Clean Water Act. CP&L holds an NPDES permit (permit number NC0007064) for BSEP issued by NCDENR.
NRC; NCDENR, North Carolina Division of Coastal Management	Section 307 of the Coastal Zone Management Act; 16 USC 1456	Applicants for a Federal license to conduct an activity in a coastal zone are to provide a certification to the licensing agency that the activity will be conducted consistently with the State's coastal zone program. The State is to notify the federal agency if it concurs with the certification.	Correspondence related to the CP&L certification is included in this Appendix E.
NRC; North Carolina Department of Cultural Resources	Section 106 of the National Historic Preservation Act; 16 USC 470f; 36 CFR 800	Prior to issuing a license, a Federal agency is to take into account effects on historic properties. The Federal agency is to consult with the state historic preservation officer.	Correspondence related to the consultation process is included in this Appendix E.



North Carolina Department of Environment and Natural Resources  
Division of Parks and Recreation

Michael F. Easley, Governor

William G. Ross, Jr., Secretary

Philip K. McKnelly, Director

May 21, 2003

Mr. Edward T. O'Neil  
Progress Energy Carolinas, Inc.  
P.O. Box 10429  
Southport, NC 28461

Subject: License Renewal for the Brunswick Steam Electric Plant; Southport, Brunswick County

Dear Mr. O'Neil:

The Natural Heritage Program has only one record of rare species on the Brunswick Plant site at Southport. The Carolina diamondback terrapin (*Malaclemys terrapin centrata*), a Federal Species of Concern, has been reported from the canal near the plant. This species is typically found along estuarine shores, however.

Although our maps do not show records of other natural heritage elements in the electric plant project area, it does not necessarily mean that they are not present. It may simply mean that the area has not been surveyed. The use of Natural Heritage Program data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

On the other hand, our Program has many dozens of rare species locations, mostly plants, within the powerline corridors in the overall project area, which extends in a 50-mile radius from the electric plant. Getting that material to Progress Energy is beyond the capabilities of our Program. The State's Center for Geographic Information and Analysis is best suited for such a large-area information request, and CGIA <[www.cgia.state.nc.us](http://www.cgia.state.nc.us)> has the Natural Heritage data layer on rare species locations. They also have a data layer on protected or other Natural Heritage sites.

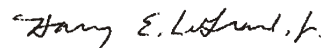
Your letter mentions several natural areas along PEC powerline corridors in the study area. It is also worth mentioning that in summer 2002, a biologist for a consulting firm, perhaps hired by PEC, found several new populations of the Federally Endangered golden sedge (*Carex lutea*) and rough-leaf loosestrife (*Lysimachia asperulifolia*) and numerous new populations of the Federal Species of Concern Venus flytrap (*Dionaea muscipula*) in the powerline on lands owned by The Nature Conservancy, north and east of Holly Shelter Game Land. Some of these lands are being inspected for potential acquisition by the Division of Parks and Recreation for a future state park

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unit. Thus, it is important the PEC continue its level and type of powerline maintenance, such as mowing/bush-hogging during the non-growing season on a roughly 3-year cycle, and avoid usage of herbicides or other chemicals to kill or retard vegetation in such sensitive biological areas.

You may wish to check the Natural Heritage Program database website at [www.ncsparks.net/nhp/search.html](http://www.ncsparks.net/nhp/search.html) for a listing of rare plants and animals and significant natural communities in the county and on the topographic quad map. Please do not hesitate to contact me at 919-715-8687 if you have questions or need further information.

Sincerely,



Harry E. LeGrand, Jr., Zoologist  
Natural Heritage Program

HEL/hel



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

July 15, 2003

Edward T. O'Neil  
Carolina Power and Light  
Brunswick Nuclear Plant  
P.O. Box 10429  
Southport, NC 28461

Dear Mr. O'Neil:

Thank you for your May 12, 2003 letter requesting information from the U.S. Fish and Wildlife Service (Service) concerning the proposed license renewal for the Brunswick Steam Electric Plant (Unit Numbers 1 and 2). The Brunswick Steam Electric Plant is located near Southport in Brunswick County, North Carolina. Transmission lines radiate from the plant in Southport to various points in Columbus, Robeson, Pender, New Hanover and Onslow Counties. Our comments are provided pursuant to, and in accordance with, provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).


The Service is aware of various populations of federally protected plant species that occur in transmission line rights-of-way in southeastern North Carolina. Specifically, populations of rough-leaved loosestrife (*Lysimachia asperulaefolia*), Cooley's meadowrue (*Thalictrum cooleyi*), and golden sedge (*Carex lutea*) are known to occur in various CP&L power line rights-of-way in the counties mentioned above and specifically in the Jacksonville transmission line. Currently, there is a Memorandum of Understanding (MOU) (dated March 19, 1993) between Carolina Power and Light and the North Carolina Natural Heritage Program that addresses the management of these sites in order to protect the rare species that occur in them. In this MOU, CP&L agreed to "preserve and protect the special elements of natural diversity and natural areas which best exemplify the state's natural heritage which occur on their power line rights-of-way" by mowing only during the non-growing season and avoiding impact to the soil and hydrologic components of the natural area. The MOU states that herbicides will only be used selectively to supplement mechanical maintenance when woody or invasive species threaten the rare species or natural communities. In addition, CP&L agreed to notify the Natural Heritage Program when an emergency or operation has occurred which impacts a site. CP&L also agreed to notify the Natural Heritage Program if the right-of-way is sold or transferred, if threats to the natural area are observed by CP&L staff, or if management changes are anticipated.

Based on the information provided in your letter and the existing MOU, the Service believes that as long as CP&L continues to be an active participant in this MOU, the renewal of the license for

the Brunswick Steam Electric Plant (Unit Numbers 1 and 2) is not likely to adversely affect any federally-listed endangered or threatened species, their formally designated critical habitat, or species currently proposed for listing under the Act. We believe that the requirements of section 7(a)(2) of the Act have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Thank you for your cooperation with our agency in protecting federally listed species. If you have any questions about our comments on this project, please contact Mr. Dales Suiter at (919) 856-4520, extension 18, or via email at Dale\_Suiter@fws.gov.

Sincerely,



Dr. Garland Pardue  
Ecological Services Supervisor

enclosure: Memorandum of Understanding

cc: North Carolina Natural Heritage Program (Jame Amoroso)





North Carolina Department of Environment and Natural Resources  
**Division of Coastal Management**

Michael F. Easley, Governor

**Charles S. Jones, Director**

William G. Ross Jr., Secretary

December 7, 2004

Richard L. Emch  
Senior Project Manager  
United States Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738

**SUBJECT:** Consistency Concurrence for Nuclear Plant License Renewal with the U.S.  
Nuclear Regulatory Commission.

Dear Mr. Emch:

The Division of Coastal Management received (Oct. 20, 2004) from Progress Energy (Carolina Power & Light Company) a consistency certification that the proposed license renewal from the U.S. Nuclear Regulatory Commission to authorize continued operation of Units 1 and 2 of the Brunswick Steam Electric Plant is consistent with the enforceable policies of North Carolina's coastal management program. Additionally Progress Energy has certified that it will conduct its activities consistent with the enforceable policies of North Carolina's coastal management program. To support this certification, Progress Energy submitted an environmental report evaluating the impacts of the proposed license renewal on the environment and with the State's coastal program. According to the environmental assessment, the continued operation of Units 1 and 2 will not have any new or previously unevaluated environmental effects that would adversely affect consistency with the State's coastal program since the proposed action will be a license renewal to authorize continuation of the existing operation.

To solicit public comments, Division of Coastal Management (DCM) published a public notice in the "*Brunswick Beacon*" on October 28, 2004 and circulated a description of the proposed project to State agencies that would have a regulatory interest in the proposed development. No comments asserting that the proposed license renewal would be inconsistent with the State's coastal program were received. Comments received have been attached to this letter.

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Phone: 919-733-2293 \ FAX: 919-733-1495 \ Internet: [www.nccoastalmanagement.net](http://www.nccoastalmanagement.net)

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The Division of Coastal Management has reviewed the submitted information pursuant to Title 15A of Chapter 7 of North Carolina's Administrative Code and concurs with the applicant's consistency certification that the proposed license renewal is consistent and will be conducted in a manner consistent with the enforceable policies of North Carolina's coastal management program.

Should the project be modified, a revised consistency certification could be necessary. This might take the form of either a supplemental consistency certification pursuant to 15 CFR 930.66, or a new consistency certification pursuant to 15 CFR 930.57. Likewise, should additional project assessments disclose environmental impacts not previously considered, a supplemental consistency certification might be required. If you have any questions, please contact Stephen Rynas at 252-808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,



Doug Huggett  
Manager, Major Permits and Consistency Unit

cc: Jim Gregson, Division of Coastal Management  
C. J. Gannon, Progress Energy



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

**RECEIVED**  
November 15, 2004  
NOV 18 2004

Morehead City DCM

TO: Stephen Rynas  
Federal Consistency Coordinator  
DCM – Morehead City Office  
151-B Hwy. 24  
Hestron Plaza II  
Morehead City, NC 28557

FROM: Melissa Carle, Wetlands Specialist

SUBJECT: Proposed NRC License Renewal of Units 1 and 2 of the Brunswick Steam  
Electric Plant, Progress Energy

LOCATION: Cape Fear Area, Brunswick County

Thank you for the opportunity to comment on this project. Based on the consistency determination, the proposed action does not appear to include direct impacts to coastal wetlands. I particularly appreciate Progress Energy's efforts to manage transmission corridors for wildlife habitat and to work with the NC Natural Heritage Program to relocate threatened and endangered species found in the transmission corridors. This benefits adjacent ecological communities, including wetlands, by minimizing the impact of the corridors on wildlife movement. Overall, this project appears to be consistent with the goals of CAMA with regards to coastal wetlands.

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North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004

RECEIVED  
NOV 18 2004

RECEIVED

OCT 28 2004

DIV. OF COASTAL MANAGEMENT  
RALEIGH

TO: Melissa Carle  
Coastal Wetlands  
DCM - Raleigh Office  
1638 Mail Service Center  
Raleigh, NC 27699-1638

Morehead City DCM

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION: Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: Melissa M. Carle

Date: 10/15/04

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



RECEIVED  
OCT 28 2004

HISTORIC PRESERVATION OFFICE

North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004

RECEIVED # ER03-1382

NOV 18 2004

TO: Renee Gledhill-Early  
Archives and History Building  
NC Division of Archives and History  
4617 Mail Service Center  
Raleigh, NC 27699-4617

Morehead City DCM S

Due 11/16  
NOV 15

FROM: Stephen Rynas, AICP, Federal Consistency Coordinator

SUBJECT: Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION: Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

RECEIVED

NOV 17 2004

DIV. OF COASTAL MANAGEMENT  
RALEIGH

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: Renee Gledhill-Early

Date: 11-15-04

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518

RECEIVED

NOV 03 2004

NOV 03 2004



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

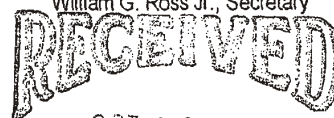
Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004



OCT 26 2004

TO:

Town of Sunset Beach  
220 Shoreline Drive West  
Sunset Beach, NC 28459-4418

Morehead City DCM

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

No Comment.

This office supports the project as proposed.

Comments to this project are attached.

This office objects to the project as proposed.

Signed:

Date: 10-26-04

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

**MEMORANDUM**

October 26, 2004

RECEIVED  
OCT 29 2004  
Morehead City DCM

TO:

Town of Southport  
201 East Moore Street  
Southport, NC 28461-3900

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed:

*Norman R. Alden*

Date:

*10/28/04*

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

**MEMORANDUM**

October 26, 2004

**RECEIVED**  
OCT 29 2004

TO:

Village of Bald Head  
P.O. Box 3009  
Bald Head Island, NC 28461-7000

**Morehead City DCM**

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: Jonath Middleb

Date: Oct. 28

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518





North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

**MEMORANDUM**

October 26, 2004

**RECEIVED**  
OCT 29 2004

TO:

County of Brunswick  
P.O. Box 249  
Bolivia, NC 28422-0249

**Morehead City DCM**

FROM:

Stephen Rynas, AICP, Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed:

*Steph K. Rynas*  
County Intention

Date:

10-27-04

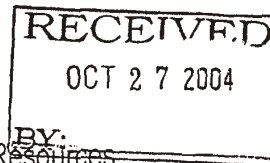
CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

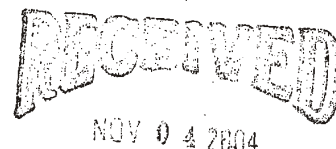
Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004



TO: Dan Sams  
NCDENR - Division of Land Resources  
127 Cardinal Drive Extension  
Wilmington, NC 28405-5406

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION: Cape Fear area, Brunswick County, North Carolina

Morehead City DGM

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at "stephen.rynas@ncmail.net".

REPLY

- \_\_\_\_\_ No Comment.
- \_\_\_\_\_ This office supports the project as proposed.
- X   \_\_\_\_\_ Comments to this project are attached. =>
- \_\_\_\_\_ This office objects to the project as proposed.

*Land disturbance that exceeds one acre of grading will require an erosion & sediment control plan application and approval.*

Signed: *Stephen Rynas*

Date: 10/29/04

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004

**RECEIVED**  
NOV 10 2004

TO:

Town of Calabash  
P.O. Box 4967  
Calabash, NC 28467-9820

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed:

*Donald H. Druie / jt*

Date:

*11-9-04*

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

MEMORANDUM

October 26, 2004

RECEIVED

NOV 16 2004

Morehead City DCM

TO:

Town of Ocean Isle Beach  
3 West Third Street  
Ocean Isle Beach, NC 28469-7506

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

LOCATION:

Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed:

*Naisy Luy*

Date:

*11/12/04*

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources

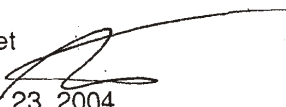
Michael F. Easley, Governor  
William G. Ross Jr., Secretary

Division of Marine Fisheries

Preston P. Pate Jr., Director

**MEMORANDUM**

**TO:** Stephan Rynas  
Federal Consistency Coordinator

**FROM:** Mike Street 

**DATE:** November 23, 2004

**SUBJECT:** NRC License Renewal of Units 1 and 2 of Brunswick Steam Electric Plant  
Brunswick County

**RECEIVED**  
NOV 23 2004

**Morehead City DCM**

Attached is the Divisions' reply for the above referenced project. If you have any questions, please do not hesitate to contact me.

MS/sw

3441 Arendell Street, P.O. Box 769, Morehead City, North Carolina 28557  
Phone: 252 726-7021 \ FAX: 252 727-5127 \ Internet: www.ncdmf.net

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North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

**MEMORANDUM**

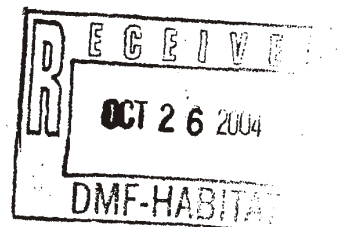
October 26, 2004

TO: Mike Street  
NCDENR - Division of Marine Fisheries  
P.O. Box 769  
Morehead City, NC 28557-0769

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

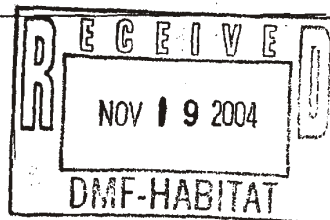
LOCATION: Cape Fear area, Brunswick County, North Carolina



Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at: "stephen.rynas@ncmail.net".

REPLY

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.



Signed: Justin Holcomb

Date: 11/18/04

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Michael F. Easley, Governor

Charles S. Jones, Director

William G. Ross Jr., Secretary

**MEMORANDUM**

October 26, 2004

**RECEIVED**  
DEC 06 2004

Morehead City DCM

**TO:** Bennett Wynne  
Division of Inland Fisheries, Habitat Conservation Program  
NC Wildlife Resources Commission  
901 Laroque  
Kinston, NC 28501-3519

**FROM:** Stephen Rynas, AICP; Federal Consistency Coordinator

**SUBJECT:** Consistency Review for the Proposed NRC License Renewal of Units 1 & 2 of the Brunswick Steam Electric Plant, Progress Energy

**LOCATION:** Cape Fear area, Brunswick County, North Carolina

Please review and comment by **November 19, 2004**. This document is available online at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/brunswick.html>. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or e-mail me at "stephen.rynas@ncmail.net".

**REPLY**

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: *Stephen Rynas* Date: 12-3-04

**CORRECTIONS**

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

**RETURN COMPLETED FORM**

to  
Stephen Rynas, Federal Consistency Coordinator  
NC Division of Coastal Management  
Hestron Plaza II, 151B Hwy. 24  
Morehead City, NC 28557-2518



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

December 29, 2004

Mr. Sam D. Hamilton, Regional Director  
 Southeast Regional Office  
 U.S. Fish and Wildlife Service  
 1875 Century Boulevard Northeast, Suite 400  
 Atlanta, Georgia 30345

**SUBJECT: REQUEST FOR LIST OF PROTECTED SPECIES WITHIN THE AREA UNDER  
 EVALUATION FOR THE BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1  
 AND 2, LICENSE RENEWAL**

Dear Mr. Hamilton:

The U.S. Nuclear Regulatory Commission (NRC) is reviewing applications submitted by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., for the renewal of the operating licenses for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP). BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. As part of the review of the license renewal applications, the NRC is preparing a Supplemental Environmental Impact Statement (SEIS) under the provisions of the National Environmental Policy Act (NEPA) of 1969, as amended, which includes an analysis of pertinent environmental issues, including endangered or threatened species and impacts to fish and wildlife. This letter is being submitted under the provisions of the Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act of 1934, as amended.

The proposed action would include the use and continued maintenance of existing plant facilities and transmission lines. BSEP is situated on approximately 1,200 acres of land; 130 acres are occupied by generating facilities, support facilities, warehouses, parking areas, construction laydown areas, equipment storage areas, and roads. The remaining acreage consists of woodlands, open fields, wetlands and marshlands. The area immediately surrounding the plant is a mix of agricultural lands, woodlands, swamps, and marshes.

The BSEP circulating water system is a once-through heat dissipation system. Cooling water is drawn from the Cape Fear River by way of a three-mile long intake canal. The circulating water system includes the intake canal, intake structure, condensers, discharge canal, Caswell Beach pumping station, and the discharge pipes that move the heated effluent into the Atlantic Ocean.

BSEP transmission corridors are approximately 220 miles long and occupy 4,000 acres. These transmission line corridors are being evaluated as part of the SEIS process. The corridors pass through low population areas that are primarily forest, farm, and swamp lands. The lines cross numerous U.S. and State highways, the Cape Fear River, and Interstate 40. Four lines in a single 310-foot corridor make a short crossing of the Orton Plantation Waterfowl Impoundment, and the Jacksonville line makes a short crossing of the Holly Shelter Game Land. Corridors that pass through farm lands generally continue to be used as farm land. The transmission line corridors traverse Brunswick, Columbus, Bladen, Robeson, New Hanover, Pender, and Onslow



Appendix E

S. Hamilton


-2-

counties in North Carolina. The transmission lines and site boundary are identified in Enclosures 1 and 2. To support the environmental impact statement preparation process and to ensure compliance with Section 7 of the Endangered Species Act, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of BSEP and its associated transmission lines. The NRC has requested the same information and list of species from NOAA Fisheries. In addition, please provide any information you consider appropriate under the provisions of the Fish and Wildlife Coordination Act.

On January 25-26, 2005, the NRC staff plans to conduct a site audit at the BSEP site. In addition, NRC staff plans to hold two public NEPA scoping meetings on January 27, 2005, at the Southport City Hall, 201 E. Moore Street, Southport, North Carolina 28461. Your staff is invited to attend both the site audit and the public meetings. The NRC staff will also forward to your office a copy of the draft SEIS along with a request for comments.

If you have any questions concerning BSEP, the license renewal application, or other aspects of this project, please contact Richard L. Emch, Jr., Senior Project Manager, at 301-415-1590 or by e-mail at [rlc@nrc.gov](mailto:rlc@nrc.gov).

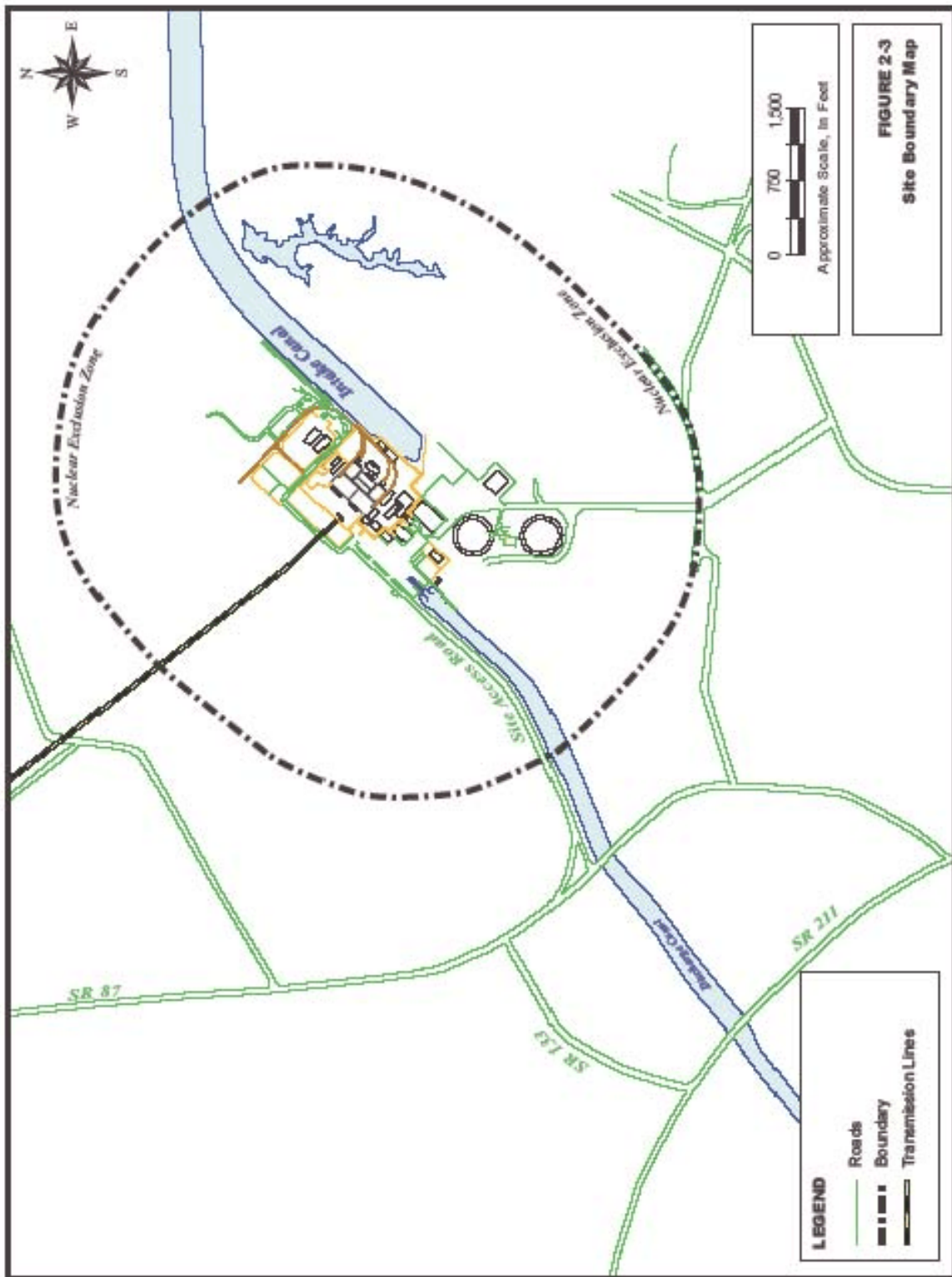
Sincerely,

  
Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

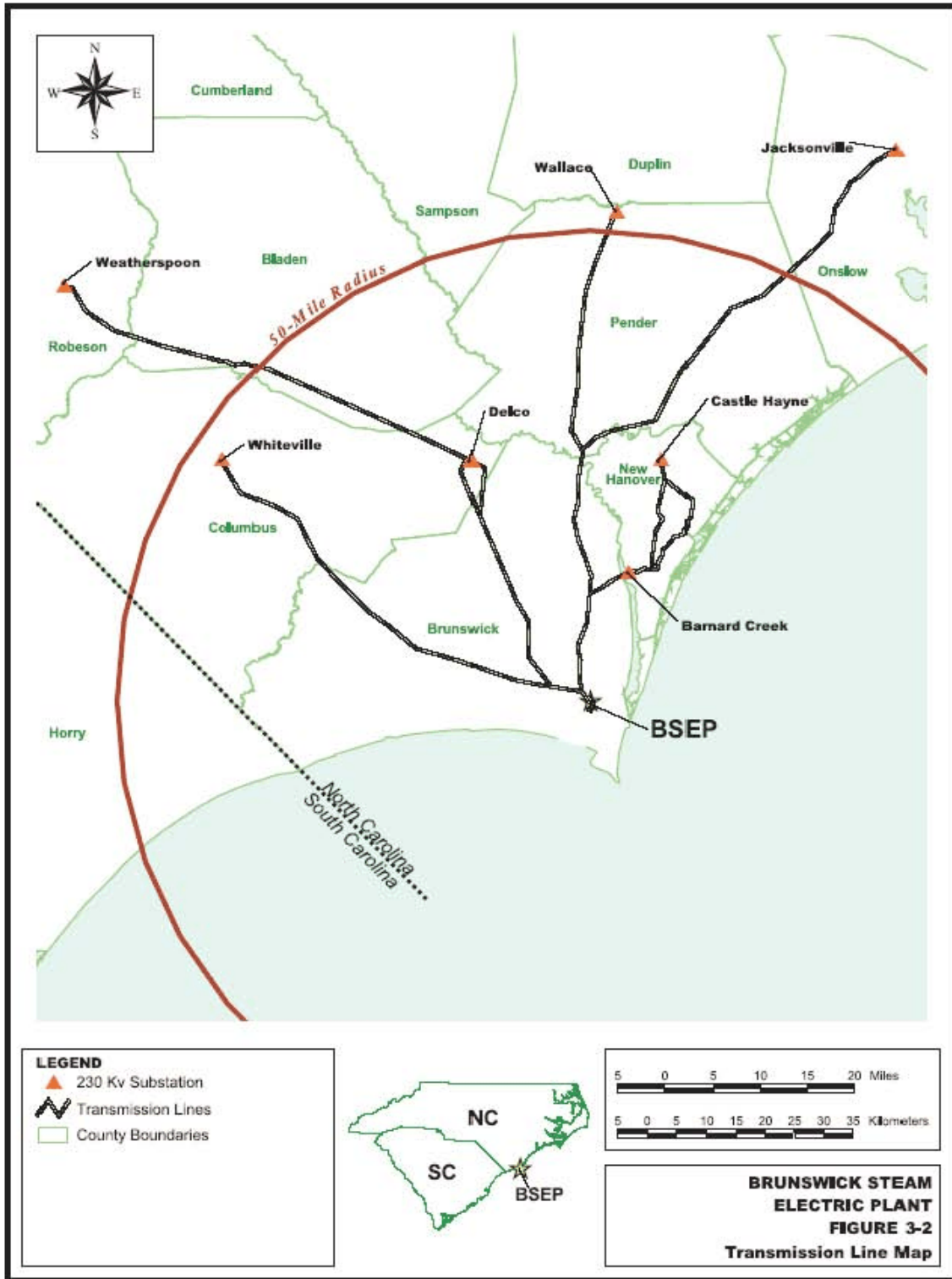
Docket Nos.: 50-324 and 50-325

Enclosures: As stated

cc w/encls.: See next page



Appendix E





UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

December 29, 2004

Ms. Patricia A. Kurkul, Regional Administrator  
 NOAA Fisheries  
 Northeast Regional Office  
 One Blackburn Drive  
 Gloucester, MA 09130-2298

**SUBJECT: REQUEST FOR LIST OF PROTECTED SPECIES WITHIN THE AREA UNDER  
 EVALUATION FOR THE BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1  
 AND 2, LICENSE RENEWAL**

Dear Ms. Kurkul:

The U.S. Nuclear Regulatory Commission (NRC) is reviewing applications submitted by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., for the renewal of the operating licenses for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP). BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. As part of the review of the license renewal applications, the NRC is preparing a Supplemental Environmental Impact Statement (SEIS) under the provisions of the National Environmental Policy Act (NEPA) of 1969, as amended, which includes an analysis of pertinent environmental issues, including endangered or threatened species and impacts to fish and wildlife. This letter is being submitted under the provisions of the Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act of 1934, as amended.

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Appendix E

P. Kurkul

-2-

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On January 25-26, 2005, the NRC staff plans to conduct a site audit at the BSEP site. In addition, NRC staff plans to hold two public NEPA scoping meetings on January 27, 2005, at the Southport City Hall, 201 E. Moore Street, Southport, North Carolina 28461. Your staff is invited to attend both the site audit and the public meetings. The NRC staff will also forward to your office a copy of the draft SEIS along with a request for comments.

If you have any questions concerning BSEP, the license renewal application, or other aspects of this project, please contact Richard L. Emch, Jr., Senior Project Manager, at 301-415-1590 or by e-mail at [RLE@nrc.gov](mailto:RLE@nrc.gov).

Sincerely,

  
Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

Enclosures: As stated

cc w/encls.: See next page



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

December 30, 2004

Dr. Jeffrey Crow  
 Deputy Secretary of Archives and History  
 State Historic Preservation Officer  
 4610 Mail Service Center  
 Raleigh, NC 27699-4610

**SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 LICENSE  
 RENEWAL REVIEW**

Dear Mr. Crow:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing applications to renew the operating licenses for Brunswick Steam Electric Plant, Units 1 and 2 (BSEP), which is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. The city limits of the nearest major metropolitan area, Wilmington, North Carolina, are approximately 15 miles north of the BSEP site. Myrtle Beach, South Carolina, a major regional tourist destination, lies approximately 50 miles to the southwest. BSEP is operated by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc. The applications for renewal were submitted by CP&L on October 20, 2004, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54). The NRC has established that, as part of the staff review of any nuclear power plant license renewal action, a site-specific Supplemental Environmental Impact Statement (SEIS) to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, will be prepared under the provisions of 10 CFR Part 51, the NRC regulation that implements the National Environmental Policy Act of 1969 (NEPA). In accordance with 36 CFR 800.8, the SEIS will include analyses of potential impacts to historic and archaeological resources.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for a license renewal action is the area at the power plant site and its immediate environs that may be impacted by post-license renewal land-disturbing operations or projected refurbishment activities associated with the proposed action. The APE may extend beyond the immediate environs in those instances where post-license renewal land-disturbing operations or projected refurbishment activities, specifically related to license renewal, may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

While preparing its application, CP&L contacted your office by letter dated May 12, 2003. In that letter, CP&L stated there are no plans to significantly alter current operations over the license renewal period. CP&L further stated that no expansion of existing facilities is planned, and no major structural modifications have been identified for the purpose of supporting license renewal. In addition, no land-disturbing activities are anticipated beyond those required for routine maintenance and repairs.


Appendix E

J. Crow

-2-

On January 27, 2005, the NRC will conduct two public NEPA scoping meetings at the Southport City Hall 201 E. Moore Street, Southport, North Carolina 28461. You and your staff are invited to attend. Your office will receive a copy of the draft SEIS along with a request for comments. The anticipated publication date for the draft SEIS is September 2005. If you have any questions or require additional information, please contact Mr. Richard L. Emch, Jr., Senior Project Manager at 301-415-1590 or [RLE@nrc.gov](mailto:RLE@nrc.gov).

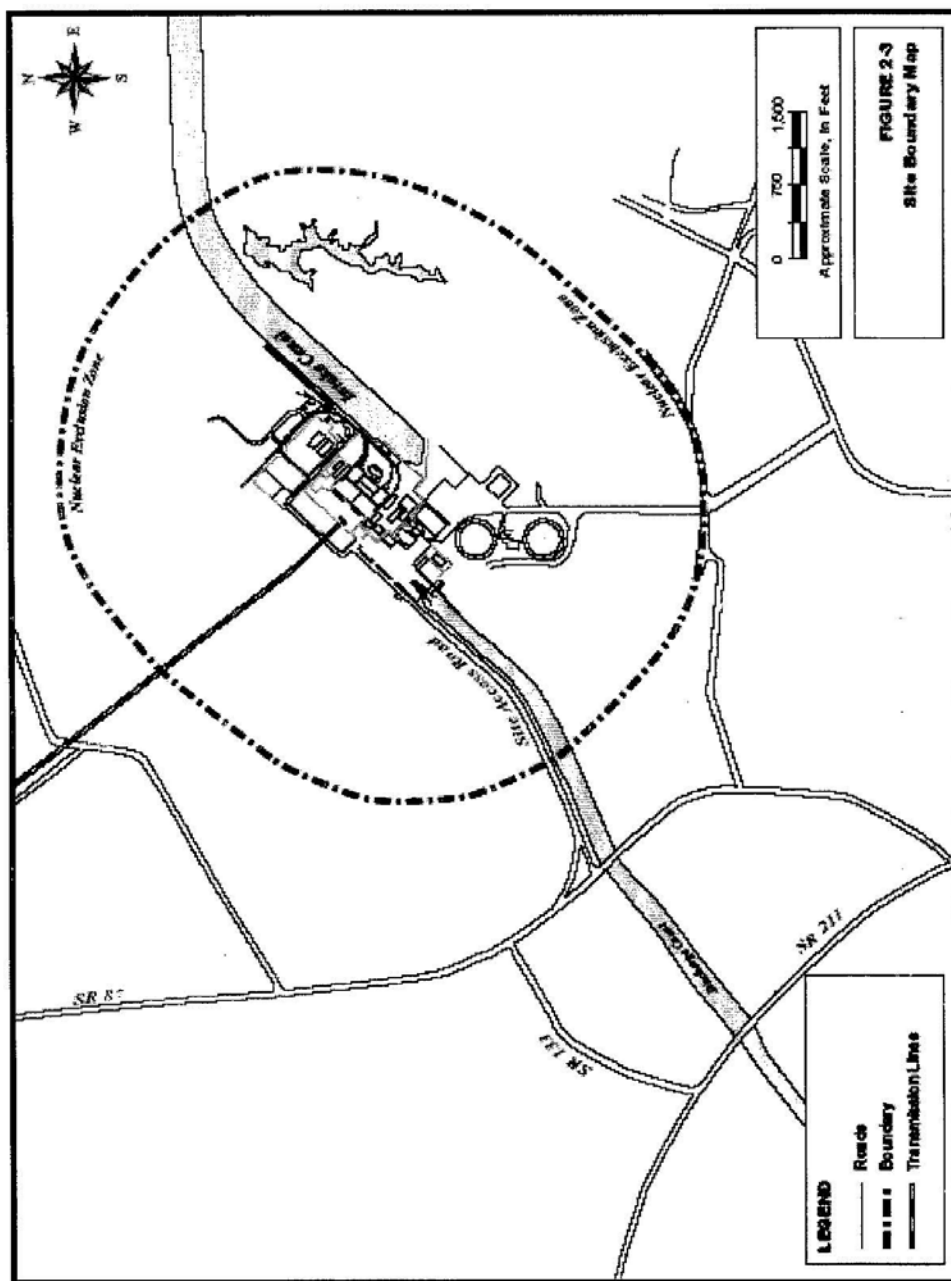
Sincerely,

  
Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-325 and 50-324

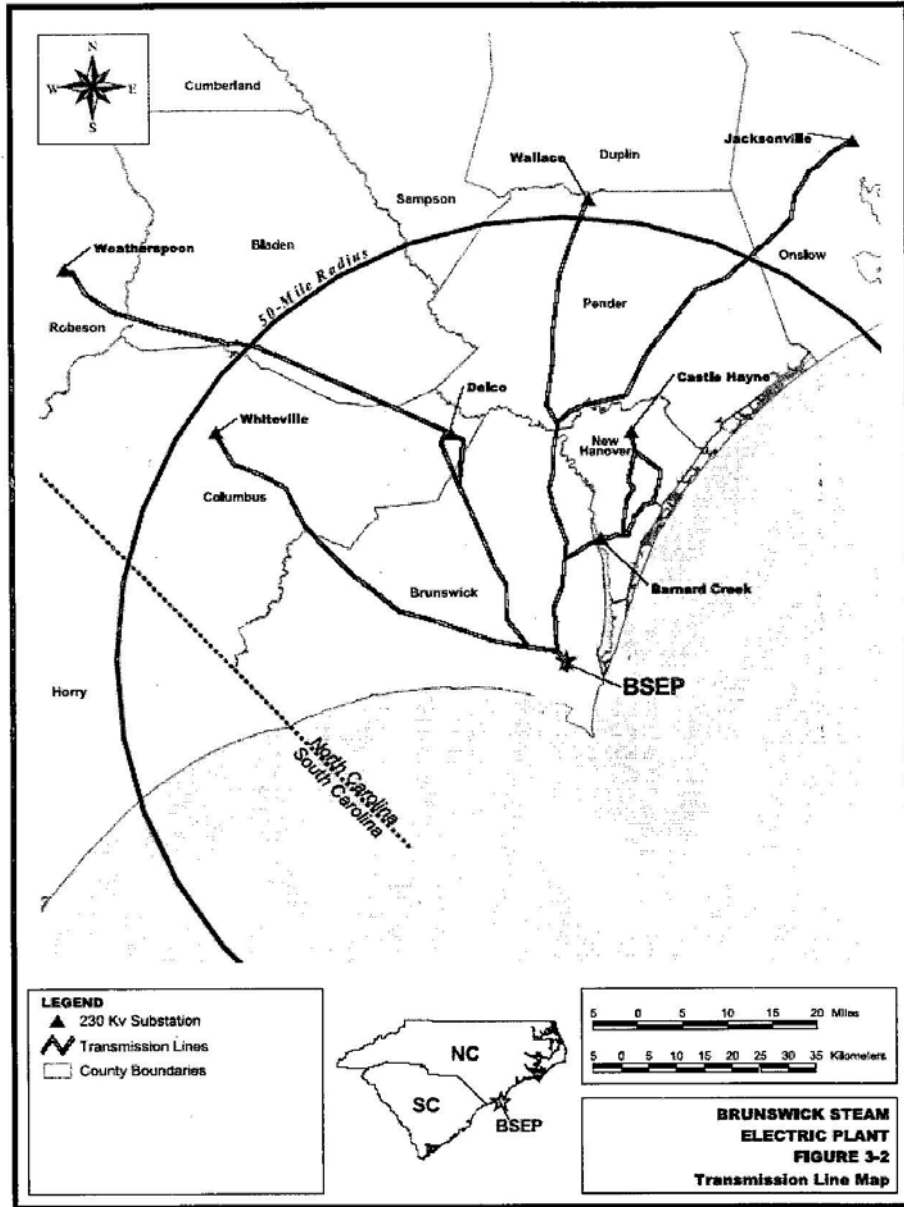
Enclosures: As stated

cc w/encl.: See next page





Appendix E





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 30, 2004

Mr. Don Klima, Director  
Office of Federal Agency Programs  
Advisory Council on Historic Preservation  
Old Post Office Building  
1100 Pennsylvania Avenue, NW, Suite 809  
Washington, DC 20004

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 LICENSE  
RENEWAL REVIEW

Dear Mr. Klima:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing applications to renew the operating licenses for Brunswick Steam Electric Plant, Units 1 and 2 (BSEP), which is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. The city limits of the nearest major metropolitan area, Wilmington, North Carolina, are approximately 15 miles north of the BSEP site. Myrtle Beach, South Carolina, a major regional tourist destination, lies approximately 50 miles to the southwest. BSEP is operated by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc. The applications for renewal were submitted by CP&L on October 20, 2004, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54). The NRC has established that, as part of the staff review of any nuclear power plant license renewal action, a site-specific Supplemental Environmental Impact Statement (SEIS) to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, will be prepared under the provisions of 10 CFR Part 51, the NRC regulation that implements the National Environmental Policy Act of 1969 (NEPA). In accordance with 36 CFR 800.8, the SEIS will include analyses of potential impacts to historic and cultural resources. A draft SEIS is scheduled for publication in September of 2005, and will be provided to you for review and comment.

If you have any questions or require additional information, please contact Senior Project Manager, Mr. Richard L. Emch, Jr., at 301-415-1590 or RLE@nrc.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Pao-Tsin Kuo".

Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-325 and 50-324

cc: See next page



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 30, 2004

Tribal Council of the Lumbee Tribe  
The Honorable Leon Jacobs  
Tribal Administrator  
P.O. Box 2709  
707 Union Chapel Rd  
Pembroke, NC 28372

**SUBJECT: U. S. NUCLEAR REGULATORY COMMISSION REVIEW OF BRUNSWICK  
STEAM ELECTRIC PLANT, UNITS 1 AND 2 LICENSE RENEWAL  
APPLICATIONS**

Dear Mr. Jacobs:

The U.S. Nuclear Regulatory Commission (NRC) is seeking input for its environmental review of applications from the Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., to renew the operating licenses for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP). BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. As described below, the NRC process includes an opportunity for public and inter-governmental participation in the environmental review. We want to ensure that you are aware of our efforts and, pursuant to Title 10 Code of the *Federal Regulations* Part 51.28(b) (10 CFR 51.28(b)), the NRC invites the Lumbee Tribal Nation to provide input to the scoping process relating to the NRC's environmental review of the application. In addition, as outlined in 36 CFR 800.8, the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act of 1966 through the requirements of the National Environmental Policy Act of 1969.

Under NRC regulations, the original operating license for a nuclear power plant is issued for up to 40 years. The license may be renewed for up to an additional 20 years if NRC requirements are met. The current operating licenses for BSEP Units 1 and 2 will expire in September 2016 and December 2014, respectively. CP&L submitted its application for renewal of the BSEP operating licenses on October 20, 2004.

The NRC is gathering information for a BSEP-specific supplement to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437. The supplement will contain the results of the review of the environmental impacts on the area surrounding the BSEP site that are related to terrestrial ecology, aquatic ecology, hydrology, historic and archaeological resources, and socioeconomic issues (among others) and will contain a recommendation regarding the environmental acceptability of the license renewal action.

The NRC will hold two public scoping meetings for the BSEP license renewal supplement to the GEIS on January 27, 2005, at the Southport City Hall, 201 E. Moore Street, Southport, North Carolina 28461. There will be two sessions to accommodate interested parties. The first session will convene at 1:30 p.m. and will continue until 4:30 p.m., as necessary. The second session will convene at 7:00 p.m., with a repeat of the overview portions of the meeting, and will

The Honorable Mr. Jacobs

- 2 -

continue until 10:00 p.m., as necessary. Additionally, the NRC staff will host informal discussions one hour before the start of each session. To be considered, comments must be provided either at the transcribed public meetings or in writing. No formal comments on the proposed scope of the supplement to the GEIS will be accepted during informal discussions.

The application is electronically available for inspection from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS) under Accession Number ML043060413. ADAMS is accessible at <http://www.nrc.gov/reading-rm/adams.html> which provides access through the NRC's Public Electronic Reading Room (PERR) link. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's Public Document Room (PDR) Reference staff at 1-800-397-4209, 1-301-415-4737, or by e-mail at [pdr@nrc.gov](mailto:pdr@nrc.gov). In addition, the application can be viewed on the Internet at <http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>.

A paper copy of the application can be viewed at the NRC's PDR, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, 20852-2738 and the William Madison Randall Library, located at 601 S. College Road, Wilmington, N.C. 28403-5616. The GEIS, which assesses the scope and impact of environmental effects that would be associated with license renewal at any nuclear power plant site, can also be found on the NRC's website or at <http://www.nrc.gov/reading-rm/pdr.html> NRC's PDR.

Please submit any written comments that the LumbeeTribal Nation may have to offer on the scope of the environmental review by March 11, 2005. Comments should be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Mail Stop T-6D59, U.S. Nuclear Regulatory Commission, Washington D.C. 20555-0001, or by e-mail to [BrunswickEIS@nrc.gov](mailto:BrunswickEIS@nrc.gov). At the conclusion of the scoping process, the NRC staff will prepare a summary of the significant issues identified and the conclusions reached and will mail a copy to you.

The NRC will issue the draft supplemental environmental impact statement (SEIS) for public comment (anticipated publication date, September 2005), and will hold another set of public meetings in the site vicinity to solicit comments on the draft. A copy of the draft SEIS will be sent to you for your review and comment. After consideration of public comments received on the draft, the NRC will prepare a final SEIS. The issuance of a final SEIS for BSEP is planned

Appendix E

The Honorable Mr. Jacobs

- 3 -

for April 2006. If you need additional information regarding the environmental review process, please contact Mr. Richard L. Emch, Jr., Senior Project Manager, at 301-415-1590 or by e-mail at RLE@nrc.gov.

Sincerely,



Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

cc: See next page



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

December 30, 2004

Mr. Archie Ray Jacobs, Travel Chairman  
 Development Association Executive Director  
 Waccamaw Siouan  
 P.O. Box 69  
 Bolton, NC 28423

**SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION REVIEW OF BRUNSWICK  
 STEAM ELECTRIC PLANT, UNITS 1 AND 2 LICENSE RENEWAL  
 APPLICATIONS**

Dear Chairman Jacobs:

The U.S. Nuclear Regulatory Commission (NRC) is seeking input for its environmental review of applications from the Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., to renew the operating licenses for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP). BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. As described below, the NRC process includes an opportunity for public and inter-governmental participation in the environmental review. We want to ensure that you are aware of our efforts and, pursuant to Title 10 Code of the *Federal Regulations* Part 51.28(b) (10 CFR 51.28(b)), the NRC invites the Waccamaw Siouan Tribal Nation to provide input to the scoping process relating to the NRC's environmental review of the application. In addition, as outlined in 36 CFR 800.8, the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act of 1966 through the requirements of the National Environmental Policy Act of 1969.

Under NRC regulations, the original operating license for a nuclear power plant is issued for up to 40 years. The license may be renewed for up to an additional 20 years if NRC requirements are met. The current operating licenses for BSEP Units 1 and 2 will expire in September 2016 and December 2014, respectively. CP&L submitted its application for renewal of the BSEP operating licenses on October 20, 2004.

The NRC is gathering information for a BSEP-specific supplement to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437. The supplement will contain the results of the review of the environmental impacts on the area surrounding the BSEP site that are related to terrestrial ecology, aquatic ecology, hydrology, historic and archaeological resources, and socioeconomic issues (among others) and will contain a recommendation regarding the environmental acceptability of the license renewal action.

The NRC will hold two public scoping meetings for the BSEP license renewal supplement to the GEIS on January 27, 2005, at the Southport City Hall, 201 E. Moore Street, Southport, North Carolina 28461. There will be two sessions to accommodate interested parties. The first session will convene at 1:30 p.m. and will continue until 4:30 p.m., as necessary. The second session will convene at 7:00 p.m., with a repeat of the overview portions of the meeting, and will

A. Jacobs

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continue until 10:00 p.m., as necessary. Additionally, the NRC staff will host informal discussions one hour before the start of each session. To be considered, comments must be provided either at the transcribed public meetings or in writing. No formal comments on the proposed scope of the supplement to the GEIS will be accepted during informal discussions.

The application is electronically available for inspection from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS) under Accession Number ML043060413. ADAMS is accessible at <http://www.nrc.gov/reading-rm/adams.html> which provides access through the NRC's Public Electronic Reading Room (PERR) link. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's Public Document Room (PDR) Reference staff at 1-800-397-4209, 1-301-415-4737, or by e-mail at [pdr@nrc.gov](mailto:pdr@nrc.gov). In addition, the application can be viewed on the Internet at <http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>.

A paper copy of the application can be viewed at the NRC's PDR, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, 20852-2738 and the William Madison Randall Library, located at 601 S. College Road, Wilmington, N.C. 28403-5616. The GEIS, which assesses the scope and impact of environmental effects that would be associated with license renewal at any nuclear power plant site, can also be found on the NRC's website or at <http://www.nrc.gov/reading-rm/pdr.html> NRC's PDR.

Please submit any written comments that the Waccamaw Siouan Tribal Nation may have to offer on the scope of the environmental review by March 11, 2005. Comments should be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Mail Stop T-6D59, U.S. Nuclear Regulatory Commission, Washington D.C. 20555-0001, or by e-mail to [BrunswickEIS@nrc.gov](mailto:BrunswickEIS@nrc.gov). At the conclusion of the scoping process, the NRC staff will prepare a summary of the significant issues identified and the conclusions reached and will mail a copy to you.

The NRC will issue the draft supplemental environmental impact statement (SEIS) for public comment (anticipated publication date, September 2005), and will hold another set of public meetings in the site vicinity to solicit comments on the draft. A copy of the draft SEIS will be sent to you for your review and comment. After consideration of public comments received on the draft, the NRC will prepare a final SEIS. The issuance of a final SEIS for BSEP is planned


A. Jacobs

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for April 2006. If you need additional information regarding the environmental review process, please contact the NRC Senior Project Manager, Mr. Richard L. Emch, Jr., at 301-415-1590, or via email at [rlc@nrc.gov](mailto:rlc@nrc.gov).

Sincerely,



 Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

cc: See next page





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

February 3, 2005

Pao-Tsin Kuo  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Mr. Kuo:

Thank you for your December 29, 2004 letter regarding Progress Energy Carolinas, Inc. request for renewal of the operating licenses for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP). The BSEP is located near Southport in Brunswick County, North Carolina. In addition to the 1,200 acre facility near Southport, the BSEP includes 220 miles of transmission corridors in Brunswick, Columbus, Bladen, Robeson, New Hanover, Pender and Onslow counties. This letter provides the U.S. Fish and Wildlife Service's (Service) response pursuant to section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) (Act).

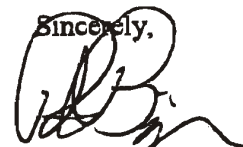
A list of all federally-protected endangered and threatened species with known occurrences in North Carolina is available on the U.S. Fish and Wildlife Service's (Service) web page at <<http://nc-es.fws.gov/es>>. Our web page also contains habitat information for all of the endangered and threatened species known from North Carolina. Section 7 of the Act requires that all federal agencies (or their designated non-federal representative), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally-listed endangered or threatened species. If the proposed project contains suitable habitat for any of the federally-listed species known to be present within the county where the project occurs, the proposed action has the potential to adversely affect those species. As such, we recommend that surveys be conducted to determine the species' presence or absence within the project area. The use of North Carolina Natural Heritage program data should not be substituted for actual field surveys.

If it is determined that the proposed action may affect (i.e., likely to adversely affect or not likely to adversely affect) a federally-protected species, you should notify this office with your determination, the results of your surveys, survey methodologies, and an analysis of the effects of the action on listed species, including consideration of direct, indirect, and cumulative effects, before conducting any activities that might affect the species. If it is

determined that the proposed action will have no effect (i.e., no beneficial or adverse, direct or indirect effect) on federally listed species, then you are not required to contact our office for concurrence (unless an Environmental Impact Statement is prepared). However, you should maintain a complete record of the assessment, including steps leading to your determination of effect, the qualified personnel conducting the assessment, habitat conditions, site photographs, and any other related articles.

On March 19, 1993, Carolina Power and Light Company (now Progress Energy Carolinas, Inc.) and the N.C. Department of Environment, Health and Natural Resources (now the N.C. Department of Environment and Natural Resources) entered into a Memorandum of Understanding (MOU) that is intended to "preserve and protect the special elements of natural diversity and natural areas which best exemplify the state's natural heritage which occur on ...powerline rights of way." As of January 1, 2001 the N.C. Natural Heritage Program listed 21 sites located within Carolina Power and Light rights of way that contain 22 state and federally listed rare plant species. Recent conversations with the N.C. Natural Heritage Program indicate that they are aware of additional sites on Progress Energy Carolinas, Inc. rights of way that are also in need of protection. The Service strongly recommends that Progress Energy Carolinas, Inc. discuss these sites with the N.C. Natural Heritage Program and incorporate as many of them as possible into their right of way management program. In addition, we also recommend that, as part of the license renewal process, Progress Energy Carolinas, Inc. revisit the original 21 sites listed in the January 1, 2001 memo and provide the Service and the N.C. Natural Heritage Program with updates on the size and/or number of stems and general health of those populations.

Thank you for the opportunity to review and provide comments on this project. If you have any questions or comments regarding our response, please contact Mr. Dale W. Suiter of this office at (919) 856-4520, Ext. 18 or Dale\_Suiter@fws.gov.

Sincerely,  


Pete Benjamin  
Ecological Services Supervisor

cc: N.C. Natural Heritage Program (Linda Pearsall, Director)



**UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE**

Southeast Regional Office  
9721 Executive Center Drive North  
St. Petersburg, FL 33702  
(727) 570-5312, FAX 570-5517  
<http://sero.nmfs.noaa.gov>  
FEB - 4 2005

Dear Colleague:

The National Marine Fisheries Service (NOAA Fisheries) Protected Resources Division has reviewed your letter pursuant to section 7(a)(2) of the Endangered Species Act (ESA) concerning Brunswick Steam Electric Plant, Units 1 and 2, License Renewal.

\_\_\_\_\_ There are no ESA-listed species or designated critical habitat under our purview in the action area.

\_\_\_\_\_ We cannot determine impacts to threatened or endangered species, or designated critical habitat, under NOAA Fisheries' purview because the letter lacks sufficient information to evaluate the project. Enclosed are guidelines to conduct a proper biological evaluation.

\_\_\_\_\_ Please provide a letter from the lead federal action agency designating you to conduct ESA section 7 consultation with this office.

0 Enclosed is a list of federally-protected species under the jurisdiction of NOAA Fisheries for the state of North Carolina. Biological information on federally-protected species and candidate species can be found at the following website addresses: [http://www.nmfs.noaa.gov/prot\\_res/prot\\_res.html](http://www.nmfs.noaa.gov/prot_res/prot_res.html); <http://noflorida.fws.gov/SeaTurtles/seaturtle-info.htm>; <http://endangered.fws.gov/wildlife.html#Species>; <http://www.cmc-ocean.org/main.php3>; <http://floridaconservation.org/psm/turtles/turtle.htm>; [http://obis.env.duke.edu/data/sp\\_profiles.php](http://obis.env.duke.edu/data/sp_profiles.php); [www.mote.org/~colins/Sawfish/SawfishHomePage.html](http://www.mote.org/~colins/Sawfish/SawfishHomePage.html); [www.floridasawfish.com](http://www.floridasawfish.com); [www.flmnh.ufl.edu/fish/sharks/InNews/sawprop.htm](http://www.flmnh.ufl.edu/fish/sharks/InNews/sawprop.htm); Gulf sturgeon critical habitat rule and maps (<http://alabama.fws.gov/gs/>); <http://www.cccturtle.org>;

\_\_\_\_\_ It is NOAA Fisheries opinion that the project will have no effect on listed species or critical habitat protected by the ESA under NOAA Fisheries' purview. No further consultation with NOAA Fisheries pursuant to section 7(a)(2) of the ESA is required unless the project description changes.

Consultation with NOAA Fisheries, Habitat Conservation Division (HCD), pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's requirements for essential fish habitat consultation may be required. Please contact HCD at (727) 570-5317. If you have any ESA questions, please contact our ESA section 7 coordinator, Eric Hawk, at (727) 570-5312, or by e-mail at [eric.hawk@noaa.gov](mailto:eric.hawk@noaa.gov).

Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sincerely,

Teletha Griffin  
Administrative Support Assistant  
Protected Resources Division

Enclosure  
File: 1514-22.b



**Endangered and Threatened Species and Critical Habitats  
under the Jurisdiction of the National Marine Fisheries Service**

**North Carolina**

Listed Species	Scientific Name	Status	Date Listed
<b>Marine Mammals</b>			
blue whale	<i>Balaenoptera musculus</i>	Endangered	12/02/70
finback whale	<i>Balaenoptera physalus</i>	Endangered	12/02/70
humpback whale	<i>Megaptera novaeangliae</i>	Endangered	12/02/70
right whale	<i>Eubalaena glacialis</i>	Endangered	12/02/70
sei whale	<i>Balaenoptera borealis</i>	Endangered	12/02/70
sperm whale	<i>Physeter macrocephalus</i>	Endangered	12/02/70
<b>Turtles</b>			
green sea turtle	<i>Chelonia mydas</i>	Threatened <sup>1</sup>	07/28/78
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	06/02/70
Kemp's ridley sea turtle	<i>Lepidochelys kempi</i>	Endangered	12/02/70
leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	06/02/70
loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	07/28/78
<b>Fish</b>			
shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered	03/11/67

**Species Proposed for Listing**

None

**Designated Critical Habitat**

None

**Proposed Critical Habitat**

None

Candidate Species <sup>1</sup>	Scientific Name
<b>Fish</b>	
dusky shark	<i>Carcharhinus obscurus</i>
sand tiger shark	<i>Odontaspis taurus</i>
night shark	<i>Carcharhinus signatus</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>
speckled hind	<i>Epinephelus drummondhayi</i>
Warsaw grouper	<i>Epinephelus nigritus</i>

<sup>1</sup> Candidate species are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.

<sup>1</sup> Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 17, 2005

Mr. Sam D. Hamilton, Regional Director  
Southeast Regional Office  
U.S. Fish and Wildlife Service  
1875 Century Boulevard Northeast, Suite 400  
Atlanta, Georgia 30345

SUBJECT: AMENDED REQUEST FOR LIST OF PROTECTED SPECIES WITHIN THE  
AREA UNDER EVALUATION FOR THE BRUNSWICK STEAM ELECTRIC  
PLANT, UNITS 1 AND 2, LICENSE RENEWAL

Dear Mr. Hamilton:

The U.S. Nuclear Regulatory Commission (NRC) sent the U.S. Fish and Wildlife Service a letter, dated December 29, 2004, requesting a list of protected species within the area under evaluation for the Brunswick Steam Electric Plant, Units 1 and 2, license renewal. In that letter, the NRC staff requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the Brunswick Steam Electric Plant (BSEP) and its associated transmission lines. This original request was based on information provided in the applicant's Environmental Report and included the transmission line corridors that transverse Brunswick, Columbus, Bladen, Robeson, New Hanover, Pender, and Onslow Counties in North Carolina. We have received a letter from your Raleigh Field Office, dated February 3, 2005, which responded to the original request.

On January 25-26, 2005, the NRC staff conducted a site audit at the BSEP site. During this audit, the NRC staff concluded that the original Fayetteville line, which now connects to the grid at the Whiteville substation, would need to be considered in this Supplemental Environmental Impact Statement (SEIS). The original Fayetteville line was built to connect BSEP to the grid and remains in existence. This change in the extent of the transmission lines adds Cumberland County in North Carolina to the list of counties that are being considered in this SEIS. The revised transmission line corridors considered in this SEIS are identified in Enclosure 1. To support the environmental impact statement preparation process and to ensure compliance with Section 7 of the Endangered Species Act, the NRC requests a revised list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of BSEP and the associated transmission lines, including the line from the Whiteville substation to the Fayetteville substation.

S. Hamilton

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If you have any questions concerning BSEP, the license renewal application, or other aspects of this project, please contact Richard L. Emch, Jr., Senior Project Manager, at 301-415-1590 or by e-mail at [rle@nrc.gov](mailto:rle@nrc.gov).

Sincerely,



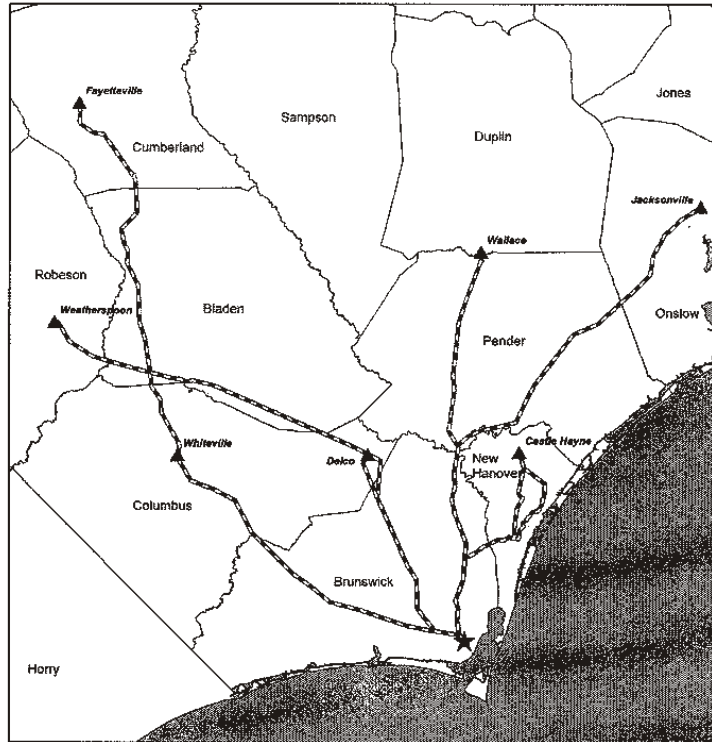
Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

Enclosure: As stated

cc w/encl.: See next page

Appendix E



**Legend**

- ★ BSEP
- ▲ 230 Kv Substations
- Transmission Lines
- County



**BRUNSWICK STEAM ELECTRIC PLANT  
Transmission Line Map**

mrs 2/10/05



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

August 8, 2005

Mr. Sam D. Hamilton, Regional Director  
Southeast Regional Office  
U.S. Fish and Wildlife Service  
1875 Century Boulevard Northeast, Suite 400  
Atlanta, GA 30345

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SUBJECT: BIOLOGICAL ASSESSMENT FOR LICENSE RENEWAL OF BRUNSWICK STEAM  
ELECTRIC PLANT, UNITS 1 AND 2, AND A REQUEST FOR INFORMAL CONSULTATION  
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Dear Mr. Hamilton:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared the enclosed biological assessment (BA) (Enclosure 1) to evaluate whether the proposed renewal of the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) operating licenses for a period of an additional 20 years would have any adverse effect on listed species. The proposed action (license renewal) is not a major construction activity. BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River.

By letters dated December 29, 2004, and March 17, 2005, the NRC requested a list of Federally endangered or threatened species that may be in the vicinity of BSEP and its associated transmission lines. In a letter dated February 3, 2005, the U.S. Fish and Wildlife Service (FWS) directed the NRC to the following Website, <http://nc.es.fws.gov/es>, for a list of Federally listed endangered or threatened species to evaluate in a BA. The FWS Website listed 12 terrestrial and six aquatic Federally endangered, threatened, or candidate species as potentially occurring in counties containing the BSEP site, transmission line rights-of-way, and the Cape Fear River.

For documentation purposes, the NRC has included four terrestrial and one aquatic species that have been reported to occur in the counties containing BSEP or associated transmission line rights-of-way, but due to known habitat requirements, they are not likely to be found near BSEP or its associated transmission lines. This BA provides an evaluation of the potential impact of renewing the BSEP operating licenses for an additional 20 years of operation on the 22 endangered and threatened species and one candidate species.

In addition, the staff also contacted the National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NMFS) by letter dated December 29, 2004, requesting a list of Federally threatened or endangered aquatic species that may be in the vicinity of BSEP. In a letter dated February 4, 2005, NMFS identified 12 Federally threatened or endangered aquatic species of whales, sea turtles, and one fish species as having the potential to be present in North Carolina waters in the vicinity of BSEP and its associated transmission line rights-of-way. FWS has full jurisdiction for the terrestrial species, West Indian manatee, and Waccamaw silverside, while sharing the responsibilities for the sea turtles with NMFS.



S. Hamilton

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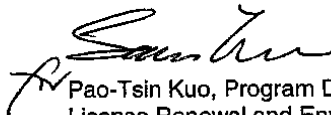
The NRC has determined that the proposed action would have no effect on the eastern cougar (*Puma concolor cougar*), piping plover (*Charadrius melodus*), seabeach amaranth (*Amaranthus pumilus*) small whorled pogonia (*Isotria medeoloides*), or the Waccamaw silverside (*Menidia extensa*).

In addition, the NRC staff has determined the proposed action may affect, but is not likely to adversely affect, the American alligator (*Alligator mississippiensis*), bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), red-cockaded woodpecker (*Picoides borealis*), Saint Francis' satyr (*Neonympha mitchellii francisci*), golden sedge (*Carex lutea*), Hirst's panic grass (*Dichanthelium hirstii*), Pondberry or southern spicebush (*Lindera melissifolia*), rough-leaf loosestrife (*Lysimachia asperulifolia*), Michaux's sumac (*Rhus michauxii*), American chaffseed (*Schwalbea americana*), Cooley's meadowrue (*Thalictrum cooleyi*), West Indian manatee (*Trichechus manatus*), loggerhead turtle (*Caretta caretta*), green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*), hawksbill turtle (*Eretmochelys imbricata*), and Kemp's ridley turtle (*Lepidochelys kempii*).

We are requesting your concurrence with our determination. In reaching our conclusion, the NRC staff relied on information provided by the licensee, on literature research and interviews with experts performed by NRC staff, and on information from the FWS (i.e., including current listings of species provided by FWS, Raleigh, Field Office).

If you have any questions regarding this BA or the staff's request, please contact Richard Emch, Senior Environmental Project Manager, at 301-415-1590 or by e-mail at rie@nrc.gov.

Sincerely,



Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

Enclosure: As stated

cc w/encl.: See next page

**Biological Assessment**  
**(for species under the jurisdiction of**  
**Fish and Wildlife Service)**

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**Brunswick Steam Electric Plant, Units 1 and 2**  
**License Renewal Review**

**August 2005**

**Docket Numbers**

**50-325**

**50-324**

**U.S. Nuclear Regulatory Commission**  
**Rockville, Maryland**

**Biological Assessment of the Potential Effects on Endangered or Threatened Species from the Proposed License Renewal for the Brunswick Steam Electric Plant, Units 1 and 2  
(for species under the jurisdiction of Fish and Wildlife Service)**

**1.0 Introduction**

The U.S. Nuclear Regulatory Commission (NRC) licenses the operation of domestic nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and NRC implementing regulations. The Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., operates Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) in southeastern North Carolina under Operating Licenses (OLs) DPR-62 and DPR-71, respectively. The OL for Unit 1 will expire September 8, 2016, and the Unit 2 license will expire December 27, 2014. CP&L has applied to renew the operating licenses for BSEP. If approved by the NRC, the renewed OLs would allow up to 20 additional years of plant operation beyond the current licensed operating term.

In letters dated December 29, 2004, the staff requested comments from the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) on the license renewal application for BSEP (NRC 2004a, b). Specifically, the staff requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of BSEP and its associated transmission line rights-of-way. In a letter from the FWS dated February 3, 2005 (FWS 2005a), the staff was directed to an FWS website (<http://nc-es.fws.gov/es>) for a list of species to include in this biological assessment (BA). NMFS provided a list of Federally protected species under their jurisdiction in a letter dated February 4, 2005 (NMFS 2005a). A total of 16 terrestrial and 20 aquatic species, Federally listed as endangered, threatened, candidates for listing, or species of concern, occur or potentially occur in the counties within which the BSEP site and its transmission line rights-of-way are located or in the Cape Fear River. The Cape Fear River serves as the source of cooling water for BSEP. Of the 36 identified species, 23 are under full or partial FWS jurisdiction.

**2.0 The Proposed Federal Action**

The proposed Federal action is renewal of the OLs for BSEP Units 1 and 2. BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. Wilmington, North Carolina is approximately 15 mi north of the BSEP site, and Myrtle Beach, South Carolina is approximately 50 mi to the southwest. By letter dated October 20, 2004, CP&L submitted an application to the NRC to renew these OLs for an additional 20 years of operation (i.e., until September 2036 for Unit 1 and December 2034 for Unit 2).

No major refurbishment or replacement of important systems, structures, or components are expected during the 20-year BSEP license renewal term. In addition, no construction activities are expected to be associated with license renewal. If the NRC approves the license renewal application, the reactors and support facilities, including the cooling system, would be expected to continue to be operated and maintained until the renewed licenses expire in the mid-2030s. Continued maintenance activities on the transmission line rights-of-way that are used to connect BSEP to the electric power grid also would be required if the proposed action is approved. Ongoing right-of-way surveillance and maintenance activities along BSEP transmission lines include routine aerial and ground inspections as well as activities associated with vegetation management.

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Pursuant to 10 CFR 54.23 and 51.53(c), CP&L submitted an Environmental Report (ER) (CP&L 2004) in which CP&L analyzed the environmental impacts associated with the proposed license renewal action, considered alternatives to the proposed action, and evaluated mitigation measures for reducing adverse environmental effects. The NRC is using this ER, as well as its own analysis as the basis of a supplemental environmental impact statement, a plant-specific supplement to NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*. This BA was prepared to evaluate the potential impacts to species protected under the Endangered Species Act of operating BSEP, Units 1 and 2 for an additional 20 years beyond the current license term for each unit.

### **3.0 The Plant and Associated Transmission Line System**

#### **3.1 Reactor Systems**

BSEP uses boiling water reactors (BWRs) and steam-driven turbine generators manufactured by General Electric. As originally built and operated, each of the BSEP units had a design rating of 2436 megawatts-thermal (MW(t)). Since 1996, the NRC has approved two power uprates. Each unit is now licensed to operate at 2923 MW(t), 20 percent over the original licensed maximum power level.

Each reactor's primary containment is a pressure suppression system consisting of a drywell, a pressure-suppression chamber storing a large volume of water, a connecting vent system between the drywell and the suppression pool, a vacuum relief system, isolation valves, containment cooling systems, and other service equipment.

#### **3.2 Cooling and Auxiliary Water Systems**

Cooling water for BSEP is obtained from the lower Cape Fear River and discharged to the Atlantic Ocean. Water passes from the lower Cape Fear estuary through screens in a diversion structure used to limit the entrainment of biota into the intake canal. The 3-mi intake canal flows via gravity from the screens at the Cape Fear River to the plant. At the plant, cooling water is drawn through a combination of eight bays (four for each unit). Each bay has a trash rack, traveling screens, and an intake pump. For each unit, two bays have fine mesh (1mm)

## Appendix E

screens and the other two bays have half fine mesh and half coarse mesh (3/8 in.) screens. Typically, each unit operates utilizing two of the fine mesh bays and one of the half fine/half coarse bays. Organisms impinged on the traveling screens are washed into a trough that leads to a holding basin before being released to Walden Creek, which is part of the Cape Fear River watershed. The daily maximum intake by BSEP is limited to 2210 cubic feet per second (cfs) during April through November and to 1844 cfs during December through March.

Chlorine is injected into the circulating water intake system to prevent biofouling. Total residual chlorine is monitored under terms of the plant's National Pollutant Discharge Elimination System (NPDES) permit before the effluent is pumped into the ocean. After passing through the plant, the discharge water is released into a 6-mi-long canal that flows by gravity out to Caswell Beach (Figure 1). At Caswell Beach the effluent is pumped 2000 ft offshore into the Atlantic Ocean.

BSEP receives potable and processed water from the Brunswick County Public Utilities. CP&L reports that from 1996 through 2001, BSEP's water imports averaged 0.23 million gallons per day (MGD). The source of the majority of water imported from Brunswick County Public Utilities is surface water from the lower Cape Fear River. BSEP operates one groundwater well onsite to supply water to the biological laboratory. The well has a rated capacity of 30 gallons per minute (gpm), but the actual use is far less than the rated capacity.

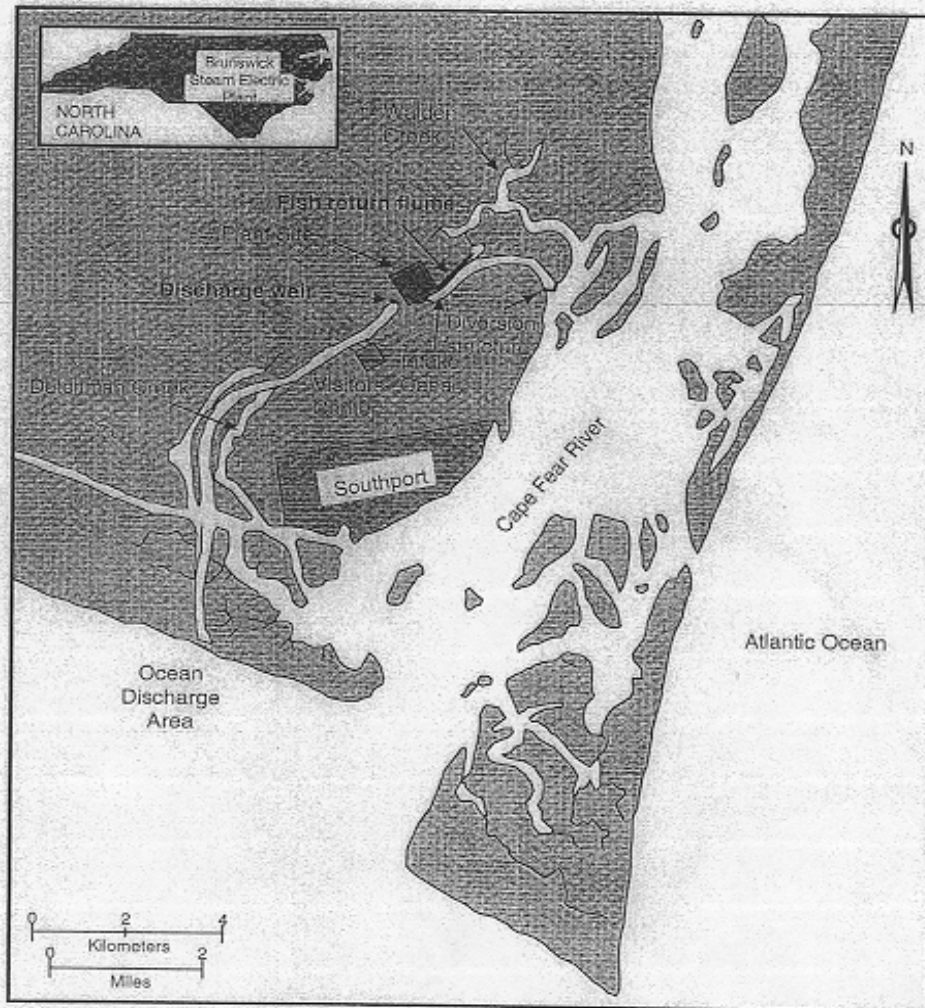
### 3.3 Electrical Transmission System

The eight 230-kV transmission lines constructed to connect the BSEP to the transmission system were described in the Final Environmental Statement (FES) for operation of BSEP Units 1 and 2 (AEC 1974). These lines included two lines to the Delco and Barnard Creek substations and lines to the Fayetteville, Wallace, and Jacksonville substations. In addition, 31 mi of new transmission line were constructed after initial licensing to connect BSEP to the Weatherspoon Substation.

The two lines to Barnard Creek Substation have been extended to the Castle Hayne Substation and Wilmington Corning Switching Station, located about 12 mi to the north of the Barnard Creek Substation. Both the Castle Hayne and the Wilmington Corning lines are considered in this BA in their entirety. The original Fayetteville line now connects to the grid at the Whiteville Substation. However, because the Fayetteville line, which was built to connect BSEP to the grid, remains in existence, the full extent of the original line is considered in this BA.

The transmission lines are shown in Figure 2. In total, about 390 mi of transmission lines in about 260 mi of rights-of-way are considered in this BA. The rights-of-way cover approximately 4690 ac. The length of each line and the area covered by the rights-of-way associated with the line are listed in Table 1. In estimating the rights-of-way for each line, the total area in shared rights-of-way was distributed equally among the lines within the right-of-way.

CP&L employs an integrated vegetation management approach that includes both mechanical and chemical control methods. This allows them to design the maintenance practices to fit the



**Figure 1.** Location of Brunswick Steam Electric Plant, Units 1 and 2 (PEC 2003)

different kinds of terrain and soils that are crossed by the transmission lines. Mechanical methods include pruning, felling, mowing, and hand trimming. Chemical methods include the use of tree growth regulators to slow the growth of fast-growing trees, and U.S. Environmental Protection Agency (EPA)-approved herbicides to control undesirable woody vegetation that regrows after mowing. Over time, the combination of mowing and herbicides results in a

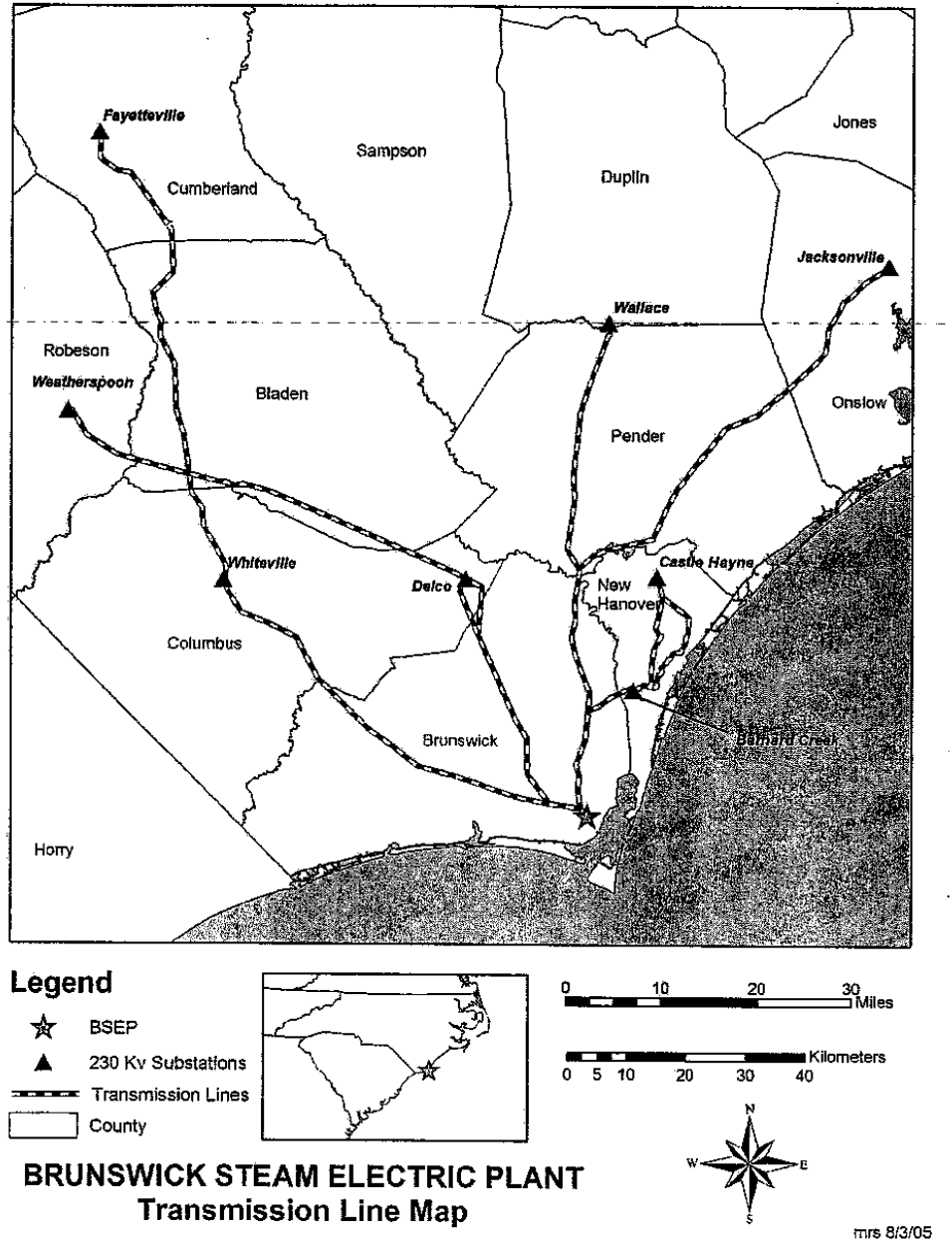


Figure 2. BSEP Transmission Line Map

**Table 1.** Brunswick Nuclear Power Plant, Units 1 and 2 Transmission Lines

Substation	Approximate Line Length	Estimated Right- of-Way Area
	Miles	Acres
Fayetteville	103	900
Weatherspoon	31	460
Delco East	31	320
Delco West	31	300
Wallace	55	720
Jacksonville	75	940
Castle Hayne East	35	650
Wilmington Corning Switching Station	27	400
Total	388	4690

community dominated by low-growing, non-woody plants, such as grasses and herbaceous plants that require less maintenance but still provide food and cover for wildlife (CP&L 2004).

#### 4.0 Environmental Setting

BSEP is located in Brunswick County, in southeastern North Carolina, near the mouth of the Cape Fear River. The area within a 6-mi radius of the plant includes the town of Southport, the community of Boiling Spring Lakes, and the resort communities of Caswell Beach, Oak Island, and Bald Head Island. Wilmington, North Carolina, lies approximately 15 mi north of the BSEP site, and Myrtle Beach, South Carolina, lies approximately 50 mi to the southwest along the coast. The Military Ocean Terminal Sunny Point is situated immediately north of the BSEP site. Figure 3 shows the site location and features in the surrounding area.

Cooling water for BSEP is drawn from the Cape Fear River by way of a 3-mi-long intake canal that passes from the river to BSEP. After passing through the plant's condensers, the heated water travels through a 6-mi-long discharge canal to Caswell Beach where it is pumped 2000 ft offshore through large submerged pipes into the Atlantic Ocean.

#### 4.1 Terrestrial Resources

The BSEP site is located within the mid-Atlantic coastal plain ecoregion (Griffith et al. 2002), which in pre-European settlement times was dominated by longleaf pine (*Pinus palustris*) with patches of oak (*Quercus* spp.), gum (*Nyssa* spp.), and cypress (*Taxodium* spp.) (Griffith et al. 2002). The BSEP site is within the Carolina flatwoods sub-region, which includes a wide variety of community types including pine flatwoods, pine savannas, freshwater marshes, pond pine



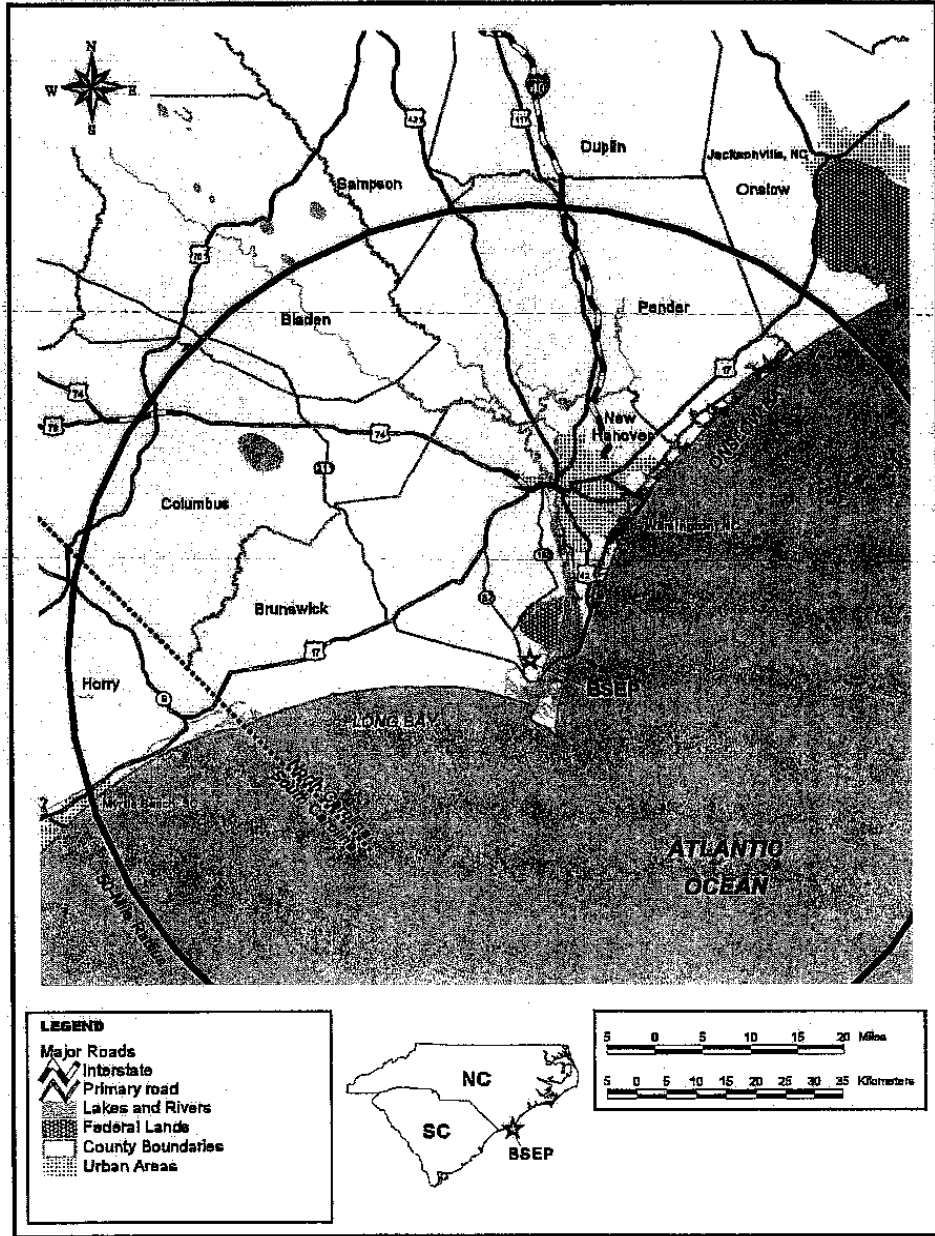


Figure 3. BSEP Location and Surrounding Area, 50-mi Radius

woodlands, pocosins, Carolina bays, and some sandhill communities (Griffith et al. 2002). The transmission lines cross other sub-region types including mid-Atlantic floodplains and low terraces, and non-riverine swamps and peatlands. The region is a significant center of endemic biota (Hall et al. 1999). Although there is still a substantial amount of native habitat in the vicinity of the BSEP site, much of it has been converted to other uses, including loblolly pine (*Pinus taeda*) plantations and croplands of corn, soybeans, and tobacco.

The environment on the BSEP site includes waterways, such as the Cape Fear River, Dutchman Creek, and Nancy Creek; saline and brackish marshes; coastal dunes; and uplands (AEC 1974). Most upland portions of the BSEP site have been replanted with loblolly pine. Terrestrial and wetland communities in the vicinity of BSEP include pine savannas, longleaf pine/wiregrass (*Aristida stricta*) communities, pine-hardwood forests, pocosins, dune-strand communities, and salt marshes (CP&L 2004).

Loblolly pine is the principal pine species in the pine-hardwood forests in the vicinity of BSEP. Important hardwoods include sweet gum (*Liquidamba styraciflua*), blackgum (*Nyssa sylvatica*), hickory (*Carya* spp.), and oaks. Along the ancient dunes, which tend to be well drained, the forests are dominated by longleaf pine, turkey oak (*Quercus laevis*), and wiregrass. Remnant pine savannas occur in periodically flooded areas; these are characterized by an open canopy of longleaf pine or pond pine (*P. serotina*) with a dense ground cover of herbs and shrubs. A relatively unique community type in the area are pocosins. These are wetland depressions vegetated with dense stands of various evergreen shrubs and small trees such as red bay (*Persea borbonia*) and sweet bay (*Magnolia virginiana*) (CP&L 2004).

Sparse stands of grass dominated by sea oats (*Uniola paniculata*) characterize the seaward side of the dune-strand communities found at the interface between the sea and land. Because of the wind and salt spray, plants are primarily found on the landward side of the dunes. Relatively dense herbaceous shrub communities dominated by sabal palm (*Sabal palmetto*) and live oak (*Q. virginiana*) develop in these more protected areas (CP&L 2004).

Cordgrass (*Spartina alterniflora*) and needlerush (*Juncus roemerianus*) are the dominant species in the salt marshes at the BSEP site. The marshes represent habitat for many important aquatic organisms that are preyed upon by a variety of terrestrial wildlife species (CP&L 2004).

Wildlife species in the vicinity of BSEP are typical of those found in the southeastern Coastal Plain. The upland communities support many species of birds, including hawks, woodpeckers, warblers, and sparrows; mammals such as white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), squirrels (*Sciurus* spp.), skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*); as well as a variety of snakes, toads, frogs and lizards. Wetlands such as the salt-marshes provide habitat for the American alligator (*Alligator mississippiensis*), raccoon (*Procyon lotor*), river otter (*Lontra canadensis*), and many species of wading birds (CP&L 2004).

There are eight transmission lines that were constructed to connect BSEP to the transmission system. The transmission line to the Barnard Creek substation crosses the Cape Fear River near the top of the estuary. The Whiteville transmission line crosses several pocosins and Green Swamp, which has been designated a National Natural Landmark (NPS 2005). The Whiteville transmission line also passes about 1 mi west of Lake Waccamaw State Park and approximately 2 mi south of Lake Waccamaw. The Holly Shelter Game Land in the Holly Shelter swamp is crossed by the Jacksonville transmission line. In northwest Pender County, the Wallace transmission line crosses the B. W. Wells Savannah, a 117-ac remnant of wetland savannah that supports 170 native plant species, some of which are considered rare (NCCLT 2001). The transmission line rights-of-ways do not cross any Federal or State parks. CP&L has partnered with the North Carolina Coastal Land Trust, the Conservation Trust for North Carolina, the Nature Conservancy, North Carolina Wild Flower Preservation Society, and the North Carolina Natural Heritage Program (NCNHP) to preserve unique and rare species within the transmission line rights-of way.

#### **4.2 Aquatic Resources**

BSEP is surrounded by a diverse and complex aquatic ecosystem. Aquatic habitat types surrounding the plant include salt marshes, the river channel/estuary, and offshore regions (CP&L 1980). The plant is situated approximately 5.7 mi upstream from the mouth of the Cape Fear River (CP&L 1985). BSEP's cooling system draws water predominantly from the surface layer of the Cape Fear River ship channel through a 3-mi-long intake channel. Water is discharged to the Atlantic Ocean after flowing through a 6-mi discharge canal. The water is pumped approximately 2000 ft offshore through submerged pipes to the point of discharge (CP&L 1979).

The Cape Fear River is estuarine at the point where water is drawn into the intake canal. Estuaries are partially enclosed coastal areas where freshwater and saltwater mix. These areas are under tidal influence, but they are protected from the full force of the ocean by barrier islands, salt marshes, or other land forms. The species found in estuaries are specially adapted for life in this transitional area. Estuaries are considered to be among the most productive areas on earth (EPA 2005).

The region surrounding the BSEP intake canal entrance, just downstream of Sunny Point, is in an area that experiences a large tidal exchange (CP&L 1985). Salinity is influenced primarily by tidal conditions and the rate of freshwater inflow. A salinity gradient exists where runoff from the Cape Fear River mixes with water from the Atlantic Ocean. From Sunny Point upstream to Wilmington, the water is often two-layered, with the less-dense freshwater moving downstream over the more-dense seawater (CP&L 1980). Downstream from Sunny Point, the water is more uniformly mixed because of complex water circulation patterns, vigorous tidal action, and high exchange rates with the ocean. This portion of the estuary is shallow and irregular in shape, with many islands and channels that enhance mixing (CP&L 1980, 1985). Because the freshwater inflow from the Cape Fear River and its tributaries is highly variable, salinities at the intake may range from nearly 0 to 32 parts per thousand (ppt) (AEC 1974). During periods of

average freshwater inflow, salinities near Sunny Point are generally in the range of 8 to 15 ppt (CP&L 1980). Minimum salinities are generally recorded in winter, and maximum salinities are generally recorded in late summer (CP&L 1985). Water temperatures in the estuary are influenced largely by changes in season, with the warmest temperatures (as high as 103°F) observed during late summer (CP&L 1985).

The Cape Fear Estuary serves as a nursery area for fish and shellfish larvae and juveniles. Some species, such as anchovy (*Anchoa* spp.) and gobies (*Gobionellus* spp., *Gobiosoma* spp.) spawn in the estuary, while others, such as Atlantic menhaden (*Brevoortia tyrannus*), spot (*Leiostomus xanthurus*), croaker (*Micropogonias undulatus*), and pinfish (*Lagodon rhomboides*) spawn in the ocean (PEC 2003). Salinity and temperature influence the spatial and seasonal distribution of these estuarine species (CP&L 1985). The ebb and flow of water in the estuary also contribute to the transport and/or retention of larvae and other organisms throughout the estuary (CP&L 1980).

Many species that inhabit waters in the vicinity of the BSEP have commercial or recreational value. Brown shrimp (*Farfantepenaeus aztecus*), pink shrimp (*F. duorarum*), and white shrimp (*Litopenaeus setiferus*) inhabit salt marshes, including Snow's Marsh, which borders the intake canal (CP&L 1980). The shrimp spawn in offshore waters and the post-larvae are recruited into the estuary where they find food and protection. As the shrimp mature, they migrate to deeper waters where commercial fishermen harvest them (AEC 1974). Croaker, an important food fish and sport fish, is another inhabitant of the salt marsh, including Snow's Creek (AEC 1974). Croaker spawn in the ocean during fall and winter. The young spend their first year in the low-salinity regions of the estuary and then move to the ocean. Examples of other species found in salt marshes near BSEP include blackcheek tonguefish (*Symphurus plagiusa*), striped anchovy (*Anchoa hepsetus*), Atlantic menhaden, and pinfish (AEC 1974).

In the river channel and estuary, developing larvae of brown, pink, and white shrimp, as well as blue crab (*Callinectes* spp.) can be found (AEC 1974). This portion of the estuary also supports the larvae of anchovy, croaker, gobies, spot, blackcheek tonguefish, Atlantic menhaden, and striped mullet (*Mugil cephalus*) (AEC 1974). The estuary supports larval fish year-round, although the species composition varies by season. Important adult fish using the estuary include gray sea trout (*Cynoscion regalis*), spot, croaker, bay anchovy (*Anchoa mitchilli*), summer flounder (*Paralichthys dentatus*), windowpane (*Scophthalmus aquosus*), American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), and blue backed herring (*Alosa aestivalis*) (AEC 1974).

The heated effluent is discharged into the offshore region at Oak Island. Larvae of shrimp, anchovies, gobies, spot, croaker, gray seatrout, pinfish, and menhaden have been recorded in this region (AEC 1974). Adults with some commercial value captured in this area include brown, pink, and white shrimp, blue crab, anchovy, spot, king fish (*Mentacirrhus americanus*), croaker, thread herring (*Opistonema oglinum*), bluefish (*Pomatomus saltatrix*), drum (*Stellifer*

*lanceolatus*), and sole (*Symphurus plagiosa*). Benthic organisms found in the mud and sand of this offshore area include the snail (*Retusa canaliculata*), brittle star (*Ophiophragum* spp.), and polychaete worms (AEC 1974).

## 5.0 Evaluation of Threatened and Endangered Species

### 5.1 Terrestrial Species

A total of 16 Federally listed terrestrial species have been identified from counties traversed by BSEP transmission line rights-of-way. Federally listed terrestrial species reported to occur from Brunswick, Bladen, Columbus, New Hanover, Onslow, Pender, Cumberland, or Robeson Counties include the bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), piping plover (*Charadrius melodus*), wood stork (*Mycteria americana*), American chaffseed (*Schwalbea americana*), rough-leaf loosestrife (*Lysimachia asperulaefolia*), golden sedge (*Carex lutea*), pondberry (*Lindera melissifolia*), sea beach amaranth (*Amaranthus pumilus*), Hirst's panic grass (*Panicum hirstii*), Michaux's sumac (*Rhus michauxii*), Cooley's meadowrue (*Thalictrum cooleyii*), small whorled pogonia (*Isotria medeoloides*), Saint Francis' satyr (*Neonympha mitchellii francisci*), and the American alligator. Also, there have been historical records of the eastern cougar (*Puma concolor cougar*) in the vicinity of BSEP.

Habitat for some of the Federally listed species could potentially be found within or traversed by BSEP transmission line rights-of-way; however, there is no critical habitat for any of the Federally listed species on the BSEP site or on the associated transmission line rights-of-way. There are known populations of the rough-leaf loosestrife, golden sedge, and Cooley's meadowrue within the BSEP transmission line rights-of-way. These sites are managed in cooperation with the N.C. Department of Environment, Health and Natural Resources (NCDEHNR). Red-cockaded woodpeckers are known to inhabit the Military Ocean Port Sunny Point, which is adjacent to BSEP, and additional habitat is located in the vicinity of the BSEP as well as along several of the transmission line rights-of-way. Wood storks and bald eagles are occasionally seen foraging at the bypass return pond on BSEP but have not been recorded nesting in the vicinity of BSEP or its transmission line rights-of-way. The American alligator is widespread in Walden Creek and has been seen near the transmission line rights-of-way and the intake and discharge canals. This species is not biologically endangered or threatened, but is listed strictly because of similarity in appearance with other threatened crocodylian species.

CP&L monitors and records occurrences and populations of Federally listed and State-sensitive terrestrial species on the BSEP site and within transmission line rights-of-way. In addition, CP&L directs its contract personnel and consults with appropriate Federal and State agencies to develop and implement restrictions and safeguards to protect threatened and endangered species on the BSEP site and the associated transmission line rights-of-way (BSEP 2003, 2005a).

CP&L and NCDEHNR signed a Memorandum of Understanding in 1993 to preserve and protect rare, threatened, and endangered species and sensitive natural areas occurring on

transmission line rights-of-way (CP&L and NCDEHNR 1993). The company manages rare plant species on its transmission line rights-of-way through several Best Management Practices (BSEP 2005a). CP&L and contractor personnel that are involved in transmission line maintenance activities must complete *Environmental Training: Endangered Species* (BSEP 2003). These personnel are responsible for familiarizing themselves with any identified rare plants in their work area. They must comply with rare plant signs posted within or along the right-of-way. CP&L personnel also install, maintain, and monitor stakes and signs that are posted at the known rare plant locations (BSEP 2005a). The use of herbicides, heavy equipment, and mowing is prohibited in areas with known populations of rare plants during the active, "above-ground" period of the plant's growing cycle. Therefore, maintenance activities are normally conducted in the fall and winter, after frost, in those segments of transmission lines that contain rare plants (BSEP 2003).

The NRC has reviewed life histories information for all the terrestrial threatened, endangered, and candidate species that have been identified in the vicinity of BSEP or the transmission line rights-of-way. The staff has also reviewed information provided by CP&L, FWS, and NCNHP regarding threatened and endangered species in the vicinity of the BSEP site and associated transmission line rights-of-way. The NRC has determined that the proposed action would either have *no effect* or *may affect, not likely to adversely affect* the terrestrial threatened, endangered, and candidate species. Terrestrial species that are listed as threatened or endangered by the FWS and have potential to occur in the vicinity of the BSEP site or along the transmission line rights-of-way are presented in Table 2. The basis for each determination is discussed in the following paragraphs.

**Table 2** Federally Listed Terrestrial Species Reported From Counties Associated with BSEP and Its Transmission Line Rights-of Way

Species	Common Name	Federal Status <sup>(a)</sup>	Counties	Determination
<b>REPTILES</b>				
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	Bladen, Brunswick, Columbus, Cumberland, New Hanover, Pender, Robeson	May affect, not likely to adversely affect
<b>MAMMALS</b>				
<i>Puma concolor couguar</i>	eastern cougar	E	Brunswick <sup>(b)</sup> , Onslow <sup>(b)</sup>	No effect
<b>BIRDS</b>				
<i>Charadrius melodus</i>	pipin plover	T	Brunswick, New Hanover, Onslow, Pender	No effect
<i>Haliaeetus leucocephalus</i>	bald eagle	T	Bladen <sup>(c)</sup> Brunswick, Columbus <sup>(c)</sup> , Onslow	May affect, not likely to adversely affect

Table 2. (contd)

Species	Common Name	Federal Status <sup>(a)</sup>	Counties	Determination
<i>Mycteria americana</i>	wood stork	E	Brunswick	May affect, not likely to adversely affect
<i>Picoides borealis</i>	red cockaded woodpecker	E	Bladen, Brunswick, Columbus, Cumberland, New Hanover, Onslow, Pender, Robeson	May affect, not likely to adversely affect
<b>INVERTEBRATES</b>				
<i>Neonympha mitchellii francisci</i>	Saint Francis' satyr	E	Cumberland	May affect, not likely to adversely affect
<b>PLANTS</b>				
<i>Amaranthus pumilus</i>	seabeach amaranth	T	Brunswick, New Hanover, Onslow, Pender	No effect
<i>Carex lutea</i>	golden sedge	E	Onslow, Pender	May affect, not likely to adversely affect
<i>Dichanthelium hirsitii</i>	Hirst's panic grass	C	Onslow	May affect, not likely to adversely affect
<i>Isotria medeoloides</i>	small whorled pogonia	T	Cumberland <sup>(d)</sup>	No effect
<i>Lindera melissifolia</i>	pondberry or southern spicebush	E	Cumberland, Bladen <sup>(b)</sup>	May affect, not likely to adversely affect
<i>Lysimachia asperulifolia</i>	rough-leaf loosestrife	E	Bladen, Brunswick, Columbus <sup>(b)</sup> , Cumberland, New Hanover, Onslow, Pender	May affect, not likely to adversely affect
<i>Rhus michauxii</i>	Michaux's sumac	E	Cumberland, Robeson	May affect, not likely to adversely affect
<i>Schwalbea americana</i>	American chaffseed	E	Bladen <sup>(b)</sup> , Cumberland, Pender <sup>(b)</sup>	May affect, not likely to adversely affect
<i>Thalictrum cooleyi</i>	Cooley's meadowrue	E	Brunswick, Columbus, New Hanover <sup>(e)</sup> , Onslow, Pender	May affect, not likely to adversely affect

(a) E - endangered, T - Threatened, T(S/A) -threatened due to similarity of appearance, C - candidate.

(b) Historic record at least 20, maybe >50, years old.

(c) Recorded in state database but not FWS listing.

(d) Obscure record in State database - not in FWS listing.

(e) Obscure record.

Based on: FWS 2005b; NCNHP 2004a

***American Alligator***

The American alligator is listed by FWS as threatened because of its similarity of appearance with other threatened crocodylian species. This species is not biologically endangered or threatened and is not subject to Section 7 consultation. They are found in freshwater wetland areas throughout southeastern North Carolina (NCNHP 2005a). In the vicinity of BSEP, the American alligator is widespread in Walden Creek and the intake and discharge canals, and it has also been seen along the Fayetteville and Wallace transmission line rights-of-way. The proposed activities (continued maintenance of the transmission line right-of-way and the intake and discharge canals) would not result in detectable modifications of the freshwater systems and would not alter habitat quality in the surrounding areas. Therefore, the NRC concludes that the proposed license renewal of BSEP may affect, but is not likely to adversely affect the American alligator.

***Eastern Cougar***

The eastern cougar is listed by FWS as endangered. This large cat formerly ranged throughout the eastern United States and Canada but was driven to near extinction during the 1800s. It may be extirpated from North Carolina (FWS 2005c) and may be extinct throughout its former range (NatureServe 2005). It has not been reported from Brunswick or any of the surrounding counties for over 20 years, and is not likely to occur near BSEP or within its transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the eastern cougar.

***Piping Plover***

The piping plover is listed by FWS as threatened. This small shorebird breeds along the Atlantic coast from Newfoundland to North Carolina, as well as along the great lakes and on river sandbars in the upper great plains (FWS 2005d). It winters along the Atlantic and Gulf coasts from North Carolina to Mexico. FWS has designated portions of the Atlantic coastal beaches in Brunswick, Hanover, Pender, and Onslow counties as critical habitat for the piping plover (66 FR 36038). Critical habitat does not occur at BSEP or adjacent to associated transmission line rights-of-way (CP&L 2004). Suitable nesting or foraging habitat is not known to occur at the BSEP site or along the transmission line rights-of-way.

The staff visited the site and reviewed the life history and critical habitat information of the piping plover. Based on this information, along with information obtained from NCNHP on the known occurrences of piping plovers, the staff determined that suitable nesting and foraging habitat is not present at the BSEP site or along the transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the piping plover.



**Bald Eagle**

The bald eagle, found throughout the United States, is listed by FWS as threatened. It was proposed for delisting on July 6, 1999 (64 FR 36453), but a decision on whether to delist the bald eagle is still pending. Bald eagle nests are large often measuring 6 ft across (FWS 2005e). Nest trees are usually large diameter trees characterized by open branching and stout limbs. Because fish is the primary food source, the majority of nest sites are within 0.5 mi of a body of water, such as coastal shorelines, bays, rivers, lakes, farm ponds, or dammed rivers (i.e., beaver dams, log jams, etc.), and have an unobstructed view of the water. Winter foraging areas are usually located near open water on rivers, lakes, reservoirs, and bays where fish and waterfowl are abundant, or in areas with little or no water (i.e., rangelands, barren land, tundra, suburban areas, etc.) where other prey species (e.g., rabbit, rodents, deer, carrion) are abundant.

Bald eagles have been periodically observed near BSEP and along the transmission line rights-of-way, but there are no known nesting locations near BSEP. In the last fifteen years, there have only been two confirmed nest sites within 20 mi of BSEP in Brunswick County.

Field personnel are required to take training to become familiar with threatened and endangered species that are in the vicinity of BSEP and the transmission line rights-of-way. This training includes familiarizing personnel with the characteristics of the bald eagle and how to identify potential bald eagle nests (BSEP 2003). CP&L field personnel are required to report any potential nests and CP&L maintains a policy of "do not disturb nests, whether active or inactive" (BSEP 2003).

The staff visited the site and reviewed the life history information on the bald eagle. Based on this information, information obtained from NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, bald eagles.

**Wood Stork**

The wood stork is listed by FWS as endangered. It inhabits freshwater and brackish wetlands, and normally nests in cypress or mangrove swamps. Because of its unique feeding technique (tacto-location), it typically requires higher prey concentrations than other wading birds and tends to rely on depressions in marshes or swamps where prey can become concentrated during periods of falling water levels. Breeding colonies are located in Florida, Georgia, and South Carolina (FWS 1997). Every summer since the 1980s, between 15 and 100 individuals have frequented the area around Sunset Beach, North Carolina, which is approximately 30 mi southwest of BSEP. This non-breeding colony represents the northernmost extent of this species range and is the only known colony of wood storks in North Carolina (FWS 2005f).

This species has been periodically observed foraging in the bypass return pond on the BSEP site. It has not been observed along the transmission line rights-of-way which are at least 15 mi from the Sunset Beach colony.

The staff visited the site and reviewed the life history of the wood stork. Based on this information, information obtained from NCNHP, and the fact that the wood stork is known to occasionally forage near the BSEP site, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the wood stork.

#### ***Red-Cockaded Woodpecker***

The red-cockaded woodpecker is listed by FWS as endangered. It occurs throughout the southeastern United States, and has been observed near the BSEP site and in all of the counties crossed by the BSEP transmission line rights-of-way. In eastern North Carolina, it is found in mature pine forests (generally longleaf pine) with sparse understory vegetation. It requires open stands of pines, with trees over 80 years old for nesting (FWS 1993a). As of 2003, there were nine active red-cockaded woodpecker nesting groups on the Military Ocean Terminal Sunny Point, and it is thought that the facility could support as many as 17 nesting groups (FWS 2003). Suitable nesting habitat for this species is not found at BSEP (CP&L 2004), but birds may forage in the vicinity of the plant and could nest or forage near many of the transmission line rights-of-way. Any facility expansion involving removal of mature longleaf pine would require surveys for this species to ensure that no red-cockaded woodpeckers or trees with their nest-cavities would be harmed (CP&L 2004).

Field personnel are required to take training to become familiar with threatened and endangered species that are in the vicinity of BSEP and the transmission line rights-of-way. This training includes familiarizing personnel with the characteristics of the red-cockaded woodpecker and how to identify potential red-cockaded woodpecker nests (BSEP 2003). CP&L field personnel are required to report any potential nests and CP&L maintains a policy of "do not disturb nests, whether active or inactive" (BSEP 2003).

The staff visited the site and reviewed the life history information about the red-cockaded woodpecker. Based on this information, information obtained from NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, red-cockaded woodpeckers.

#### ***Saint Francis' Satyr Butterfly***

The Saint Francis' satyr butterfly is listed by FWS as endangered. It occurs in a single meta-population in the sandhills of Cumberland and Hoke Counties, North Carolina (FWS 2005g). Habitat consists primarily of wet meadows dominated by sedges (*Carex* spp.) and other wetland graminoids (FWS 1996a). The species has been observed in a variety of other wetland areas,

including areas with pitcher plants and the endangered rough-leaf loosestrife, but it is not known if the Saint Francis' satyr uses these habitats for any part of its life cycle other than a travel corridor. Although suitable habitat for the Saint Francis' satyr potentially could occur within or near the Brunswick-to-Fayetteville transmission line right-of-way, the NCNHP does not have record of this species within at least 8 mi of the right-of-way.

The staff visited the site and reviewed the life history of the Saint Francis' satyr butterfly. Based on this information, information obtained from NCNHP, and the fact that wetland areas with pitcher plants and rough-leaf loosestrife are known to occur in the BSEP transmission line rights-of-way, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, Saint Francis' satyr butterfly.

#### ***Seabeach Amaranth***

The seabeach amaranth is listed by FWS as threatened. It is an annual plant that inhabits open sand areas on Atlantic ocean beaches, originally from Massachusetts to South Carolina, but is now restricted to approximately 55 populations in South Carolina, North Carolina, and New York state (FWS 1996b). Between 60 and 70 percent of the surviving populations are in North Carolina, including some in Brunswick, New Hanover, Onslow, and Pender Counties (FWS 2005h; NCNHP 2005a). All populations are strictly coastal, and seabeach amaranth often co-occurs in the same areas as the piping plover (FWS 1996b). There are no known populations near the BSEP site, and it is unlikely that there is any suitable habitat at the BSEP site or near any of the transmission rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the seabeach amaranth.

#### ***Golden Sedge***

The golden sedge is listed by FWS as endangered and is only found in Pender and Onslow Counties, North Carolina. This species was first discovered in 1991, but was not formally described until 1994 (67 FR 3120); therefore, relatively little is known about its ecology. Golden sedge is a perennial found in a rare habitat type of coastal savanna underlain by calcareous (limestone) deposits (FWS 2002a). At the time it was listed as endangered, there were only eight known populations of golden sedge, all within a 2-mi radius of each other. Several additional populations have been found since the publication of the final listing determination (NCNHP 2005b). In 1996, a single population of golden sedge was recorded along the Jacksonville transmission line right-of-way in Onslow County. Since that time, additional populations have been noted, and data provided by the NCNHP indicates the presence of three populations within the Jacksonville transmission line right-of-way and three others within 0.5 mi of that right-of-way in Onslow and Pender Counties. The populations in the Jacksonville right-of-way are protected by CP&L under an agreement with the NCNHP. In addition, field personnel are required to take *Environmental Training: Endangered Species* to become familiar with threatened and endangered species that are in the vicinity of BSEP and the transmission line rights-of-way and to become familiar with CP&Ls Best Management Practices

related to protecting rare plants in CP&L rights-of-way. These Best Management Practices include scheduling activities outside the growing season for rare plants, avoiding the use of heavy equipment in areas with rare plants at all times, and not using herbicides in areas where rare plants have been identified (BSEP 2005a).

The staff visited the site and reviewed the life history information about the golden sedge. Based on this information, information obtained from NCNHP, and information obtained from BSEP on transmission line rights-of-way maintenance procedures and Best Management Practices, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, golden sedge.

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#### ***Hirst's Panic Grass***

The Hirst's panic grass is currently a candidate for protection. It is currently known from only three sites, one in Delaware and two in North Carolina; there are two sites in New Jersey where it has not been seen in 10 to 20 years (FWS 2002b). Hirst's panic grass inhabits coastal plain intermittent ponds in wet savanna or pine barren habitats. The species relies on periods of standing water to help minimize competition from other species. The two known populations in North Carolina are both located on Camp LeJeune Marine Corps Base in Onslow County. The known populations of Hirst's panic grass are at least 7 mi from the nearest BSEP transmission line rights-of-way, but suitable habitat may be found within or near the rights-of-way.

The staff visited the site and reviewed the life history of Hirst's panic grass. Based on this information, along with information obtained from NCNHP on the species distribution, the staff determined that suitable habitat could be found within the transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, Hirst's panic grass.

#### ***Small Whorled Pogonia***

The small whorled pogonia is listed by FWS as threatened and by the NCNHP (NCNHP 2005a) as occurring in Cumberland County based on an obscure record. The FWS does not include this species in its county listings (FWS 2005i). This species occurs in very small populations that are widely distributed from southern Maine and New Hampshire south through Virginia, to northern Georgia and Eastern Tennessee, with outlying populations occurring in a number of states west to Michigan and Illinois (FWS 1992). In the southern portion of its range, the small whorled pogonia is normally found in white pine (*P. strobus*)/mixed deciduous forests, and it appears to be somewhat shade intolerant (FWS 1992). All of the known populations of the small whorled pogonia in North Carolina or South Carolina are located on the far western end of each state, and no known populations are located within 150 mi of BSEP or associated transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the small whorled pogonia.

***Pondberry (southern spicebush)***

The pondberry or southern spicebush is listed by FWS as endangered. It is a shrub that occurs in wetland habitats such as bottomland, and the margins of sinks, ponds, and other depressions. It normally grows in shaded areas but may also be found in full sun (FWS 2005j). It occurs in widely scattered sites along an arc from southeastern North Carolina through Georgia and Mississippi to Arkansas and southern Missouri (FWS 1993b). It is known from three sites in North Carolina, including one population in Bladen County. Suitable habitat could be found within several of the rights-of-way, but the NCNHP data do not include records of it occurring within at least 1 mi of the nearest BSEP transmission line right-of-way.

The staff visited the site and reviewed the life history of the pondberry. Based on this information, along with information obtained from NCNHP on the species distribution, the staff determined that suitable habitat could be found within the transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, pondberry.

***Rough-Leaf Loosestrife***

The rough-leaf loosestrife is listed by FWS as endangered. It is a perennial herb that occurs in pocosins in the coastal plain and sandhills of North Carolina (FWS 2005k). Habitat is generally in the ecotone between longleaf pine or oak savannas and wetter, shrubby areas where moist sandy or peaty soils occur, and where low vegetation allows abundant sunlight to penetrate to the soil surface (FWS 1995a). This grass-shrub ecotone naturally would be fire maintained; therefore, the species appears to benefit from some periodic disturbance. Eight populations of rough-leaf loosestrife are known from Brunswick County; one occurs in a BSEP transmission line right-of-way north of BSEP in the Boiling Spring Lakes area (i.e., the right-of-way that contains the Castle Hayne East, Wilmington Corning, Wallace, and Jacksonville transmission lines). Several populations are associated with the Wallace and Jacksonville transmission line rights-of-way in Pender County (CP&L 2004) and one population is known near the end of the Fayetteville transmission line. These populations are protected and managed by CP&L under an agreement with the NCNHP. It is likely that there are additional areas with suitable habitat for this species near the BSEP site and several of the transmission line rights-of-way.

Field personnel are required to take training to become familiar with threatened and endangered species that are in the vicinity of BSEP and the transmission line rights-of-way and to become familiar with CP&Ls Best Management Practices related to protecting rare plants in CP&L power line rights-of-way. These Best Management Practices include scheduling activities outside the growing season for rare plants, avoiding the use of heavy equipment in areas with rare plants at all times, and not using herbicides in areas with rare plants (BSEP 2003a, 2005a).

The staff visited the site and reviewed the life history information about the rough-leaf loosestrife. Based on this information, information obtained from NCNHP, and information obtained from BSEP on transmission line rights-of-way maintenance procedures and Best Management Practices, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the rough-leaf loosestrife.

#### ***Michaux's Sumac***

The Michaux's sumac is listed by FWS as endangered. It is a shrub that inhabits a variety of soil types that may range from sandy, acidic soils to clayey, circumneutral soils (NatureServe 2005). It survives best in areas that are subjected to some form of disturbance that provides open space. At least 12 populations in North Carolina are on highway rights-of-way, road clearings, or on the edges of artificial clearings (FWS 2005). There are an estimated 31 populations remaining in North Carolina, spread over eight counties, including one population in Robeson County, which contains the terminus of the Weatherspoon transmission line. The known population in Robeson County is not within 2 mi of the Witherspoon transmission line right of way. However, there is a potential for suitable habitat to occur within or near the Weatherspoon transmission line right-of-way.

The staff visited the site and reviewed the life history of Michaux's sumac. Based on this information, along with information obtained from NCNHP on the species distribution, the staff determined that suitable habitat could be found within the transmission line rights-of-way. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the Michaux's sumac.

#### ***American Chaffseed***

The American chaffseed is listed by FWS as endangered. Of the 72 known extant populations, 18 are located in North Carolina. However, 17 of those populations are on Fort Bragg in Cumberland and Hoke Counties. The other extant population in North Carolina is along a roadside in Moore County (FWS 1995b). Historically, the species has been reported in Bladen and Pender Counties, but has not been observed in these counties for at least 20 years (NCNHP 2005a). The American chaffseed is a hemiparasitic plant that occurs in sandy, acidic, seasonally moist, to dry soils. It is generally found in habitats described as open, moist, pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric sandy soils, and other open grass-sedge systems. It is dependent on factors such as fire, mowing, or fluctuating water tables to maintain the open to partly-open conditions that it requires (FWS 1995b). No populations have been recorded near the BSEP site or along the transmission line rights-of-way, or anywhere in the counties containing these rights-of-way for at least 20 years. However, suitable habitat potentially exists in these areas.

The staff visited the site and reviewed the life history of American chaffseed. Based on this information, along with information obtained from NCNHP on the species distribution, the staff determined that suitable habitat could be found within the transmission line rights-of-way.

Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the American chaffseed.

### ***Cooley's Meadowrue***

The Cooley's meadowrue is listed by FWS as endangered; there are approximately 11 known populations in North Carolina, all in Brunswick, Columbus, Onslow, and Pender Counties, and one very small population in northern Florida (FWS 1994, 2005m). The populations in North Carolina are in two clusters; there are six sites within 4 mi of each other in Pender and Onslow Counties, and five sites within 8 mi of each other in Brunswick and Columbus Counties.

Cooley's meadowrue is a perennial herb that grows in circumneutral soils in wet pine savannas or grass-sedge bogs, often at the border of intermittent drainages or swamp forests. It is often associated with some type of disturbance such as clearings, edges of frequently burned savannas, and powerline or highway rights-of-way that are maintained by fire or mowing (NatureServe 2005). The species typically occupies a narrow hydrological niche, where soil is moist to saturated, but water does not stand above the soil surface (NatureServe 2005).

Cooley's meadowrue is potentially affected by transmission line rights-of-way maintenance. Several populations have been found in or near the Jacksonville right-of-way in Onslow County. The populations within the right-of-way are protected by CP&L under an agreement with the NCNHP. Several other populations have been observed near, but not within the Fayetteville transmission right-of-way in western Brunswick County. It is likely that there are additional areas of suitable habitat along several of the transmission line rights-of-way.

Field personnel are required to take training to become familiar with threatened and endangered species that are in the vicinity of BSEP and the transmission line rights-of-way and to become familiar with CP&Ls Best Management Practices related to protecting rare plants in CP&L transmission line rights-of-way. These Best Management Practices include scheduling activities outside the growing season for rare plants, avoiding the use of heavy equipment in areas with rare plants at all times, and not using herbicides in areas with rare plants (BSEP 2003a, 2005a).

The staff visited the site and reviewed the life history information about the Cooley's meadowrue. Based on this information, information obtained from NCNHP, and information obtained from BSEP on transmission line rights-of-way maintenance procedures and Best Management Practices, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the Cooley's meadowrue.

### **5.2 Aquatic Species**

A total of seven Federally listed threatened or endangered aquatic species under either full or partial FWS jurisdiction were identified as having the potential to be present in North Carolina waters in the vicinity of BSEP and its associated transmission line rights-of-way (NMFS 2005a; FWS 2005a). There is no critical habitat for any of the Federally listed species at the BSEP site or near the associated transmission line rights-of-way. These include the West Indian manatee

(*Trichechus manatus*), five sea turtles (loggerhead turtle [*Caretta caretta*], green turtle [*Chelonia mydas*], leatherback turtle [*Dermochelys coriacea*], hawksbill turtle [*Eretmochelys imbricata*], and Kemp's ridley turtle [*Lepidochelys kempii*]), and a fish, the Waccamaw silverside (*Menidia extensa*) (Table 3). NMFS and the FWS share jurisdiction for the sea turtles, with NMFS having responsibility in the marine environment and FWS on nesting beaches.

The NRC has reviewed life histories information for all the aquatic threatened or endangered species that have been identified in the vicinity of BSEP or the transmission line rights-of-way. The staff has also reviewed information provided by CP&L, FWS, NMFS, and the NCNHP regarding threatened and endangered species in the vicinity of BSEP (CP&L 2004; NCNHP 2004b; NMFS 2005a, b, and c; FWS 2005b). The NRC has determined that the proposed action would either have *no effect* or *may affect, not likely to adversely affect* the endangered or threatened species. The basis for each determination is discussed in the following paragraphs.

**Table 3** Federally Listed Aquatic Species Reported from Counties Associated with BSEP and Its Transmission Line Rights-of Way

Species	Common Name	Federal Status <sup>(a)</sup>	Counties	Determination
<b>MAMMALS</b>				
<i>Trichechus manatus</i>	West Indian manatee	E	Brunswick, New Hanover, Onslow, Pender	May affect, not likely to adversely affect
<b>REPTILES</b>				
<i>Caretta caretta</i>	loggerhead turtle	T <sup>(b)</sup>	Brunswick, New Hanover, Onslow, Pender	May affect, not likely to adversely affect
<i>Chelonia mydas</i>	green turtle	T <sup>(b,c)</sup>	Brunswick, New Hanover, Onslow	May affect, not likely to adversely affect
<i>Dermochelys coriacea</i>	leatherback turtle	E <sup>2(b)</sup>	Brunswick, Onslow	May affect, not likely to adversely affect
<i>Eretmochelys imbricata</i>	hawksbill turtle	E <sup>(b)</sup>	(NC) <sup>(d)</sup>	May affect, not likely to adversely affect
<i>Lepidochelys kempii</i>	Kemp's ridley turtle	E <sup>(b)</sup>	Brunswick	May affect, not likely to adversely affect
<b>FISH</b>				
<i>Menidia extensa</i>	Waccamaw silverside	T	Columbus	No effect

(a) E - endangered, T- threatened.

(b) Nesting areas are under FWS jurisdiction, otherwise the species is under NMFS jurisdiction.

(c) Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

(d) (NC) - County-level listings are not available; the species has Federal listing status in North Carolina



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### ***West Indian Manatee***

The West Indian manatee is a Federally listed endangered species. These large mammals may be found as far north as Virginia along the Atlantic coast. At least two manatees have been observed in the Cape Fear Estuary, but none have been documented at the BSEP site (CP&L 1998; PEC 2005). They may inhabit both salt and fresh water, generally between 5 and 20 ft deep (FWS 2005n). The diversion structure with turtle-blocker panels installed at the entrance to the intake canal should minimize the potential for manatee entry into the canal.

The staff visited the site and reviewed the life history information on the West Indian manatee. Based on this information, information obtained from NCNHP and FWS, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the West Indian manatee.

### ***Waccamaw Silverside***

The Waccamaw silverside, which is Federally listed as a threatened species, is known only from Lake Waccamaw in Columbus County. Therefore, it is not expected to occur at the BSEP site (FWS 2005o). The Fayetteville transmission line passes approximately 2 mi south of Lake Waccamaw, but maintenance and operation of that transmission right-of-way has no impact on the lake.

The staff visited the site and reviewed the life history information on the Waccamaw silverside. Based on this information, information obtained from NCWRC, FWS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the Waccamaw silverside.

### ***Sea Turtles***

NMFS and the FWS share jurisdiction for the sea turtles, with NMFS having responsibility in the marine environment and FWS on nesting beaches. A Biological Opinion issued by the NMFS in 2000 addressed impacts to sea turtles specifically resulting from BSEP operation (NMFS 2002). There are no known suitable nesting beaches on the BSEP site or associated transmission line rights-of-way; therefore, Section 7 consultation with FWS has not been required.

### ***Loggerhead Turtle***

The loggerhead turtle is listed by the FWS as threatened. The loggerhead may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship canals, and the mouths of large rivers. Loggerhead turtles were the most common species observed at the BSEP in 2004; 69 percent of the sea turtles handled were loggerheads. The species also nests on suitable beaches suitable for nesting from North Carolina to Florida,

with primary nesting beaches found in Florida (FWS 2005p). Nesting season is generally between May and November.. Loggerhead turtle nesting in North Carolina occurs only on the Atlantic Coast beaches, and does not occur in the Cape Fear River estuary or anywhere near the BSEP site or associated transmission line rights-of-way.

The staff visited the site and reviewed the life history information on the loggerhead turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the loggerhead turtle.

#### ***Green Turtle***

The green turtle is listed by the FWS as threatened. In eastern North America, this species is found from Massachusetts to Mexico. Green turtles are generally found in shallow waters inside reefs, bays, and inlets and are attracted to lagoons and shoals with an abundance of marine grass and algae. Approximately 12 percent of the sea turtles handled at the BSEP in 2004 were green turtles. Nesting in the continental United States is limited to between 300 and 1000 nests annually on Florida's east coast (FWS 2005q).

The staff visited the site and reviewed the life history information on the green turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, green turtles.

#### ***Leatherback Turtle***

The leatherback turtle is listed as endangered by the FWS. The species rarely enters the estuary. Only historical sightings of the leatherback (last observed more than 20 years ago) have been documented in Brunswick County (NHP 2004b). Nesting in the United States occurs mainly in Florida, but has also occurred in Georgia, South Carolina, and North Carolina. No nests have been observed at the BSEP site.

The staff visited the site and reviewed the life history information on the leatherback turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the leatherback turtle.

#### ***Hawksbill Turtle***

The hawksbill is listed as endangered by the FWS. In the continental United States, nesting is restricted to the southeast coast of Florida and the Florida Keys (NMFS 2005b). The hawksbill

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turtle has been reported from all the eastern seaboard, but sightings north of Florida are rare. This species has not been documented at the BSEP site.

The staff visited the site and reviewed the life history information on the hawksbill turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the hawksbill turtle.

### ***Kemp's Ridley Turtle***

The Kemp's ridley turtle is listed by the FWS as endangered. Nesting occurs in Tamaulipas Mexico, and sometimes in Texas. Adults of this species are found primarily in the Gulf of Mexico, but immature turtles are found along the Atlantic coast as far north as Canada (FWS 2005r). The Kemp's ridley turtle is found in shallow coastal waters, often in association with red mangrove shorelines (FWS 2005r). Nearly 19 percent of the sea turtles handled at BSEP in 2004 were Kemp's ridley turtles.

The staff visited the site and reviewed the life history information on the Kemp's ridley turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the Kemp's ridley turtle.

## **6.0 Conclusions**

The staff has identified 12 terrestrial and 6 aquatic Federally listed endangered, threatened, and candidate species that are under full or partial FWS jurisdiction that have a reasonable potential to occur in the vicinity of BSEP or along the transmission line rights-of-way, and therefore may be affected by continued operations of BSEP and maintenance of the associated transmission line rights-of-way. Additionally, the staff identified four other Federally listed terrestrial species and one Federally listed aquatic species that have been reported to occur in the counties containing BSEP or associated transmission rights-of-way. However, because of known habitat requirements, these species are not likely to be found near BSEP or its associated transmission line rights-of-way and, therefore, would not be affected by continued operations at BSEP. CP&L has procedures in place to protect endangered or threatened species, if they are encountered at the plant site or along transmission line rights-of-way, and provides training for employees on these procedures (BSEP 2003, 2005a). In 1993, CP&L signed a Memorandum of Understanding with the NCDEHNR to preserve and protect rare, threatened, and endangered species and sensitive natural areas occurring on transmission line rights-of-way (CP&L and NCDEHNR 1993). CP&L also maintains Best Management Practices for Management of Rare Plants on its rights-of-way (BSEP 2005a).

The NRC staff has analyzed the species that are likely to be in the vicinity of BSEP or the associated transmission lines, the known distributions and records of those species, the ecological impacts of the operation of BSEP and the operation and maintenance of the associated transmission rights-of-way, the effects of these practices on the species potentially present, and the mitigation measures that CP&L has already implemented. Based on this analysis, the staff has determined that continued operation of BSEP and its associated transmission lines for an additional 20 years would not have an adverse impact on any threatened or endangered species.

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UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

August 9, 2005

Mr. David Bernhart  
 Assistant Regional Administrator for Protected Resources  
 NOAA's National Marine Fisheries Service  
 Southeast Regional Office  
 263 13th Avenue, South  
 St. Petersburg, FL 33701

**SUBJECT: BIOLOGICAL ASSESSMENT FOR LICENSE RENEWAL OF BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2, AND A REQUEST FOR INFORMAL CONSULTATION**

Dear Mr. Bernhart:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared the enclosed biological assessment (BA) (Enclosure 1) to evaluate whether the proposed renewal of the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) operating licenses for a period of an additional 20 years would have any adverse effect on listed species. The proposed action (license renewal) is not a major construction activity. BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River.

By letter dated December 29, 2004, to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), the NRC requested a list of Federally threatened or endangered species that may be in the vicinity of BSEP and its associated transmission lines. In a letter dated February 4, 2005, NMFS identified 12 Federally listed endangered or threatened species and six species of concern as potentially occurring in the area containing the BSEP site, transmission line rights-of-way, and the Cape Fear River.

In addition, the staff also contacted the U. S. Fish and Wildlife Service (FWS) by letter dated December 29, 2004, requesting a list of Federally endangered or threatened species that may be in the vicinity of BSEP. In a letter dated February 3, 2005, FWS directed the staff to the following Website, <http://nc.es.fws.gov/es>, for a list of species. The staff identified a total of 16 terrestrial and 20 aquatic Federally listed endangered, threatened, or candidate species or species of concern having the potential to be present in the vicinity of BSEP and its associated transmission line rights-of-way. Regarding the marine species, NMFS has full jurisdiction for the whales and sturgeon, while sharing the responsibilities for the sea turtles with the FWS.

The NRC has determined that the proposed action would have no effect on the sei whale (*Balaenoptera borealis*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera Novaeangliae*), sperm whale (*Physeter macrocephalus*), dusky shark (*Carcharhinus obscurus*), night shark (*Carcharhinus signatus*), speckled hind (*Epinephelus drummondhayi*), or warsaw grouper (*Epinephelus nigritus*).

D. Bernhart

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Also, the NRC staff determined the proposed action may affect, but is not likely to adversely affect, the loggerhead turtle (*Caretta caretta*), green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*), hawksbill turtle (*Eretmochelys kempii*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), or the sand tiger shark (*Odontaspis taurus*). There is currently an Incidental Take Statement in place as a result of a previous formal Section 7 consultation and accompanying Biological Opinion issued by NMFS on January 20, 2000. Those take limits (six loggerhead, two Kemp's ridley, three green, one leatherback, and one hawksbill turtles) continue to apply to BSEP operation.

We are requesting your concurrence with our determination. In reaching our conclusion, the NRC staff relied on information provided by the licensee, on literature research and interviews with experts performed by NRC staff, and on information from the NMFS (Southeast Regional Office).

If you have any questions regarding this BA or the staff's request, please contact Richard Emch, Senior Environmental Project Manager, at 301-415-1590 or by e-mail at rie@nrc.gov.

Sincerely,



Pao-Tsin Kuo, Program Director  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-324 and 50-325

Enclosure: As stated

cc w/encl.: See next page

**Biological Assessment**  
(for species under the jurisdiction of  
NOAA's National Marine Fisheries Service)

**Brunswick Steam Electric Plant, Units 1 and 2**  
**License Renewal Review**

**August 2005**

**Docket Numbers**

**50-325**

**50-324**

**U.S. Nuclear Regulatory Commission**  
**Rockville, Maryland**

**Biological Assessment of the Potential Effects on Endangered or Threatened Species from the Proposed License Renewal for the Brunswick Steam Electric Plant, Units 1 and 2  
(for species under the jurisdiction of NOAA's National Marine Fisheries Service)**

**1.0 Introduction**

The U.S. Nuclear Regulatory Commission (NRC) licenses the operation of domestic nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and NRC implementing regulations. The Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., operates Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) in southeastern North Carolina under Operating Licenses (OLs) DPR-62 and DPR-71, respectively. The OL for Unit 1 will expire September 8, 2016, and the Unit 2 license will expire December 27, 2014. CP&L has applied to renew the operating licenses for BSEP. If approved by the NRC, the renewed OLs would allow up to 20 additional years of plant operation beyond the current licensed operating term.

In letters dated December 29, 2004, the staff requested comments from the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) on the license renewal application for BSEP (NRC 2004a, b). Specifically, the staff requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of BSEP and its associated transmission line rights-of-way. In a letter from the FWS dated February 3, 2005 (FWS 2005a), the staff was directed to an FWS website (<http://nc-es.fws.gov/es>) for a list of species to include in this biological assessment (BA). NMFS provided a list of Federally protected species and species of concern under their jurisdiction in a letter dated February 4, 2005 (NMFS 2005a). A total of 16 terrestrial and 20 aquatic species, Federally listed as endangered, threatened, candidates for listing, or species of concern, occur or potentially occur in the counties within which the BSEP site and its transmission line rights-of-way are located or in the Cape Fear River. The Cape Fear River serves as the source of cooling water for BSEP. Of the 36 identified species, 18 are under full or partial jurisdiction of NMFS.

**2.0 The Proposed Federal Action**

The proposed Federal action is renewal of the OLs for BSEP Units 1 and 2. BSEP is located in Brunswick County in southeastern North Carolina, near the mouth of the Cape Fear River. Wilmington, North Carolina is approximately 15 mi north of the BSEP site, and Myrtle Beach, South Carolina is approximately 50 mi to the southwest. By letter dated October 20, 2004, CP&L submitted an application to the NRC to renew these OLs for an additional 20 years of operation (i.e., until September 2036 for Unit 1 and December 2034 for Unit 2).

No major refurbishment or replacement of important systems, structures, or components are expected during the 20-year BSEP license renewal term. In addition, no construction activities are expected to be associated with license renewal. If the NRC approves the license renewal application, the reactors and support facilities, including the cooling system, would be expected

to continue to be operated and maintained until the renewed licenses expire in the mid-2030s. Continued maintenance activities on the transmission line rights-of-way that are used to connect BSEP to the electric power grid also would be required if the proposed action is approved. Ongoing right-of-way surveillance and maintenance activities along BSEP transmission lines include routine aerial and ground inspections as well as activities associated with vegetation management.

Pursuant to 10 CFR 54.23 and 51.53(c), CP&L submitted an Environmental Report (ER) (CP&L 2004) in which CP&L analyzed the environmental impacts associated with the proposed license renewal action, considered alternatives to the proposed action, and evaluated mitigation measures for reducing adverse environmental effects. The NRC is using this ER, as well as its own analysis as the basis of a supplemental environmental impact statement, a plant-specific supplement to NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*. This BA was prepared to evaluate the potential impacts to species protected under the Endangered Species Act of operating BSEP, Units 1 and 2 for an additional 20 years beyond the current license term for each unit.

### **3.0 The Plant and Associated Transmission Line System**

#### **3.1 Reactor Systems**

BSEP uses boiling water reactors (BWRs) and steam-driven turbine generators manufactured by General Electric. As originally built and operated, each of the BSEP units had a design rating of 2436 megawatts-thermal (MW(t)). Since 1996, the NRC has approved two power uprates. Each unit is now licensed to operate at 2923 MW(t), 20 percent over the original licensed maximum power level.

Each reactor's primary containment is a pressure suppression system consisting of a drywell, a pressure-suppression chamber storing a large volume of water, a connecting vent system between the drywell and the suppression pool, a vacuum relief system, isolation valves, containment cooling systems, and other service equipment.

#### **3.2 Cooling and Auxiliary Water Systems**

Cooling water for BSEP is obtained from the lower Cape Fear River and discharged to the Atlantic Ocean. Water passes from the lower Cape Fear estuary through screens in a diversion structure used to limit the entrainment of biota into the intake canal. The 3-mi intake canal flows via gravity from the screens at the Cape Fear River to the plant. At the plant, cooling water is drawn through a combination of eight bays (four for each unit). Each bay has a trash rack, traveling screens, and an intake pump. For each unit, two bays have fine mesh (1mm) screens and the other two bays have half fine mesh and half coarse mesh (3/8 in) screens. Typically, each unit operates utilizing two of the fine mesh bays and one of the half fine/half coarse bays. Organisms impinged on the traveling screens are washed into a trough that leads to a holding basin before being released to Walden Creek, which is part of the Cape Fear River watershed. The daily maximum intake by BSEP is limited to 2210 cubic feet per second (cfs) during April through November and to 1844 cfs during December through March.

Appendix E

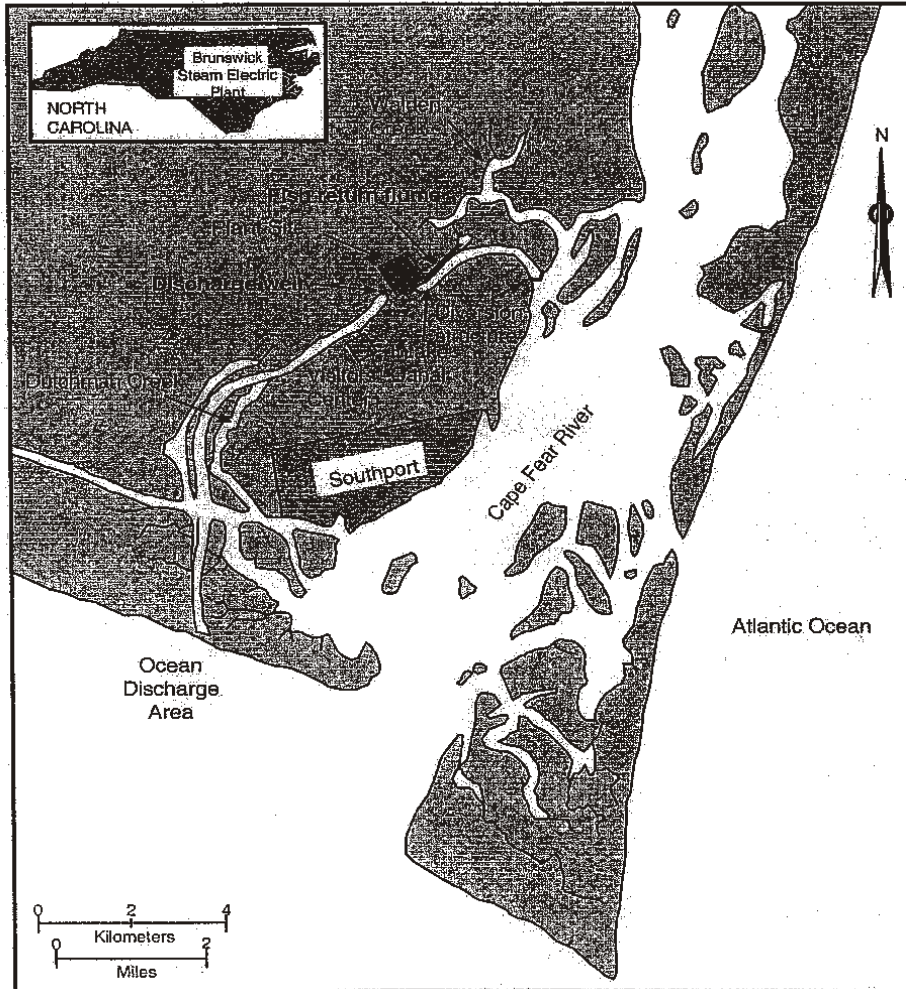


Figure 1. Location of Brunswick Steam Electric Plant, Units 1 and 2 (PEC 2003)

Chlorine is injected into the circulating water intake system to prevent biofouling. Total residual chlorine is monitored under terms of the plant's National Pollutant Discharge Elimination System (NPDES) permit before the effluent is pumped into the ocean. After passing through the plant, the discharge water is released into a 6-mi-long canal that flows by gravity out to Caswell Beach (Figure 1). At Caswell Beach the effluent is pumped 2000 ft offshore into the Atlantic Ocean.

BSEP receives potable and processed water from the Brunswick County Public Utilities. CP&L reports that from 1996 through 2001, BSEP's water imports averaged 0.23 million gallons per day (MGD). The source of the majority of water imported from Brunswick County Public Utilities is surface water from the lower Cape Fear River. BSEP operates one groundwater well onsite to supply water to the biological laboratory. The well has a rated capacity of 30 gallons per minute (gpm), but the actual use is far less than the rated capacity.

### 3.3 Electrical Transmission System

The eight 230-kV transmission lines constructed to connect the BSEP to the transmission system were described in the Final Environmental Statement (FES) for operation of BSEP Units 1 and 2 (AEC 1974). These lines included two lines to the Delco and Barnard Creek substations and lines to the Fayetteville, Wallace, and Jacksonville substations. In addition, 31 mi of new transmission line were constructed after initial licensing to connect BSEP to the Weatherspoon Substation.

The two lines to Barnard Creek Substation have been extended to the Castle Hayne Substation and Wilmington Corning Switching Station, located about 12 mi to the north of the Barnard Creek Substation. Both the Castle Hayne and the Wilmington Corning lines are considered in this BA in their entirety. The original Fayetteville line now connects to the grid at the Whiteville Substation. However, because the Fayetteville line, which was built to connect BSEP to the grid, remains in existence, the full extent of the original line is considered in this BA.

The transmission lines are shown in Figure 2. In total, about 390 mi of transmission lines in about 260 mi of rights-of-way are considered in this BA. The rights-of-way cover approximately 4690 ac. The length of each line and the area covered by the rights-of-way associated with the line are listed in Table 1. In estimating the rights-of-way for each line, the total area in shared rights-of-way was distributed equally among the lines within the right-of-way.

CP&L employs an integrated vegetation management approach that includes both mechanical and chemical control methods. This allows them to design the maintenance practices to fit the different kinds of terrain and soils that are crossed by the transmission lines. Mechanical methods include pruning, felling, mowing, and hand trimming. Chemical methods include the use of tree growth regulators to slow the growth of fast-growing trees, and U.S. Environmental Protection Agency (EPA)-approved herbicides to control undesirable woody vegetation that regrows after mowing. Over time, the combination of mowing and herbicides results in a community dominated by low-growing, non-woody plants, such as grasses and herbaceous plants that require less maintenance but still provide food and cover for wildlife (CP&L 2004).

### 4.0 Environmental Setting

BSEP is located in Brunswick County, in southeastern North Carolina, near the mouth of the Cape Fear River. The area within a 6-mi radius of the plant includes the town of Southport, the community of Boiling Spring Lakes, and the resort communities of Caswell Beach, Oak Island, and Bald Head Island. Wilmington, North Carolina, lies approximately 15 mi north of the BSEP site, and Myrtle Beach, South Carolina, lies approximately 50 mi to the southwest along the coast. The Military Ocean Terminal Sunny Point is situated immediately north of the BSEP site. Figure 3 shows the site location and features in the surrounding area.



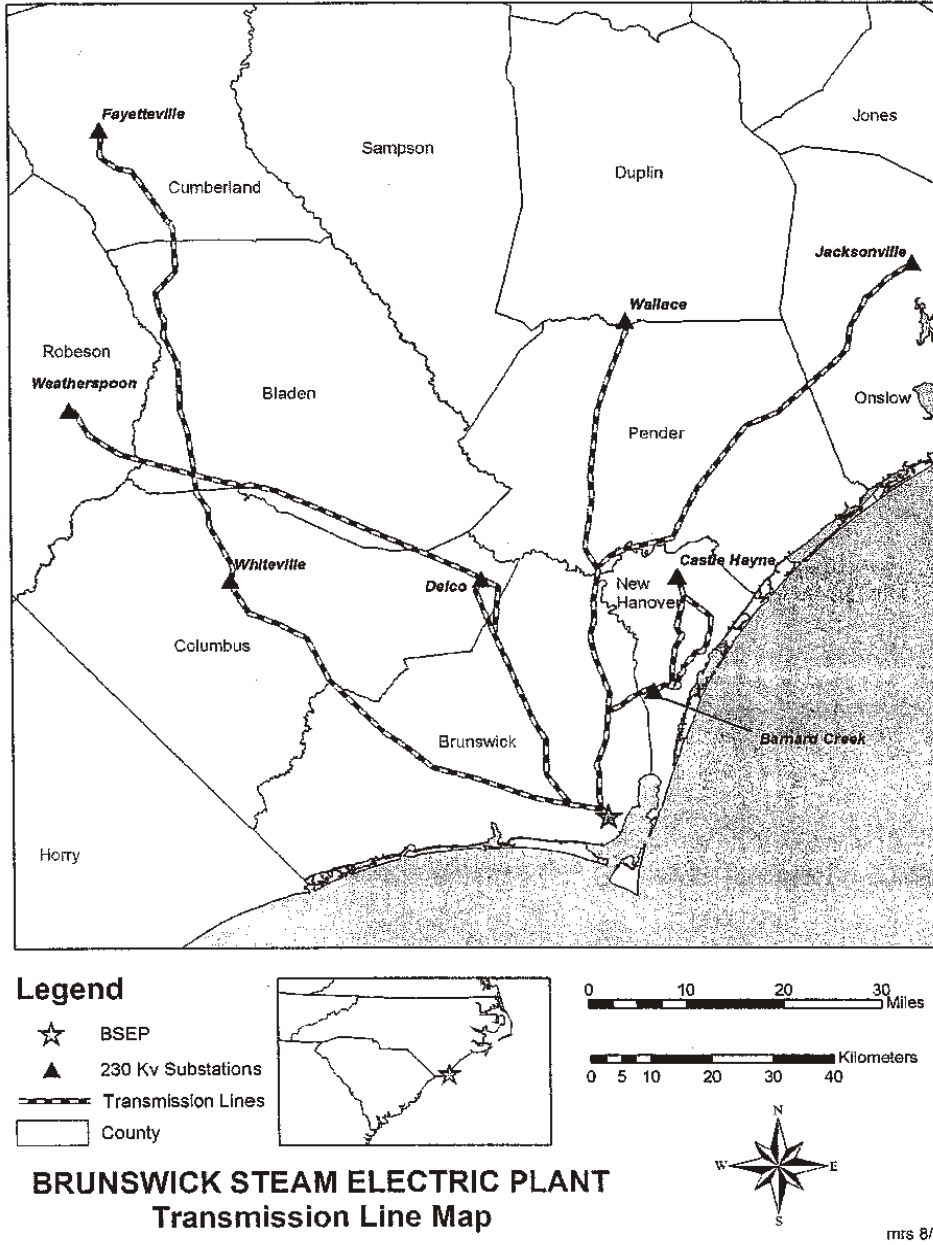


Figure 2. BSEP Transmission Line Map

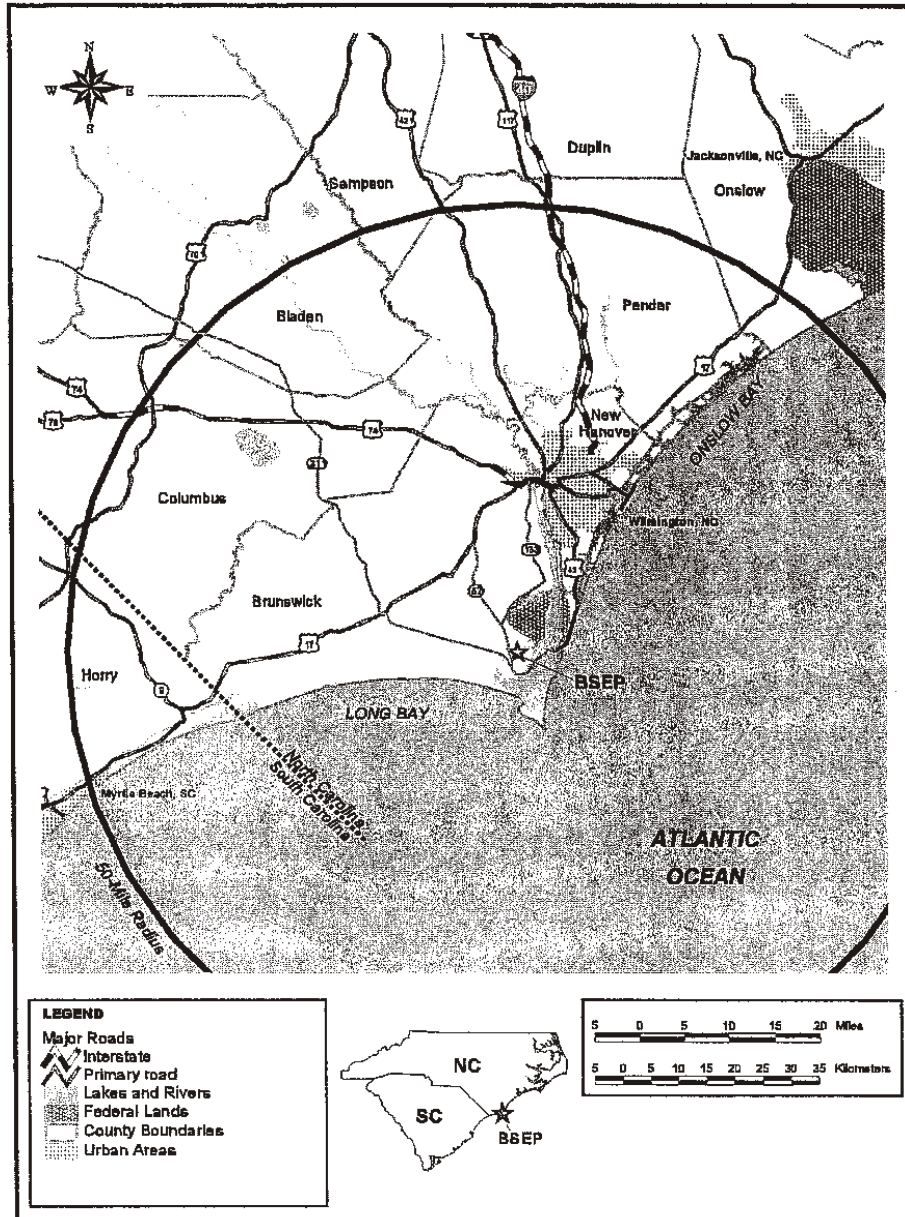


Figure 3. BSEP Location and Surrounding Area, 50-mi Radius

**Table 1.** Brunswick Nuclear Power Plant, Units 1 and 2 Transmission Lines

Substation	Approximate Line Length	Estimated Right- of-Way Area
	Miles	Acres
Fayetteville	103	900
Weatherspoon	31	460
Delco East	31	320
Delco West	31	300
Wallace	55	720
Jacksonville	75	940
Castle Hayne East	35	650
Wilmington Corning Switching Station	27	400
Total	388	4690

Cooling water for BSEP is drawn from the Cape Fear River by way of a 3-mi-long intake canal that passes from the river to BSEP. After passing through the plant's condensers, the heated water travels through a 6-mi-long discharge canal to Caswell Beach where it is pumped 2000 ft offshore through large submerged pipes into the Atlantic Ocean.

#### 4.1 Terrestrial Resources

The BSEP site is located within the mid-Atlantic coastal plain ecoregion (Griffith et al. 2002), which in pre-European settlement times was dominated by longleaf pine (*Pinus palustris*) with patches of oak (*Quercus* spp.), gum (*Nyssa* spp.), and cypress (*Taxodium* spp.) (Griffith et al. 2002). The BSEP site is within the Carolina flatwoods sub-region, which includes a wide variety of community types including pine flatwoods, pine savannas, freshwater marshes, pond pine woodlands, pocosins, Carolina bays, and some sandhill communities (Griffith et al. 2002). The transmission lines cross other sub-region types including mid-Atlantic floodplains and low terraces, and non-riverine swamps and peatlands. The region is a significant center of endemic biota (Hall et al. 1999). Although there is still a substantial amount of native habitat in the vicinity of the BSEP site, much of it has been converted to other uses, including loblolly pine (*P. taeda*) plantations and croplands of corn, soybeans, and tobacco.

The environment on the BSEP site includes waterways, such as the Cape Fear River, Dutchman Creek, and Nancy Creek; saline and brackish marshes; coastal dunes; and uplands (AEC 1974). Most upland portions of the BSEP site have been replanted with loblolly pine. Terrestrial and wetland communities in the vicinity of BSEP include pine savannas, longleaf pine/wiregrass (*Aristida stricta*) communities, pine-hardwood forests, pocosins, dune-strand communities, and salt marshes (CP&L 2004).

Loblolly pine is the principal pine species in the pine-hardwood forests in the vicinity of BSEP. Important hardwoods include sweet gum (*Liquidamba styraciflua*), blackgum (*Nyssa sylvatica*), hickory (*Carya* spp.), and oaks. Along the ancient dunes, which tend to be well drained, the

forests are dominated by longleaf pine, turkey oak (*Quercus laevis*), and wiregrass. Remnant pine savannas occur in periodically flooded areas; these are characterized by an open canopy of longleaf pine or pond pine (*Pinus serotina*) with a dense ground cover of herbs and shrubs. A relatively unique community type in the area are pocosins. These are wetland depressions vegetated with dense stands of various evergreen shrubs and small trees such as red bay (*Persea borbonia*) and sweet bay (*Magnolia virginiana*) (CP&L 2004).

Sparse stands of grass dominated by sea oats (*Uniola paniculata*) characterize the seaward side of the dune-strand communities found at the interface between the sea and land. Because of the wind and salt spray, plants are primarily found on the landward side of the dunes. Relatively dense herbaceous shrub communities dominated by sabal palm (*Sabal palmetto*) and live oak (*Q. virginiana*) develop in these more protected areas (CP&L 2004).

Cordgrass (*Spartina alterniflora*) and needlerush (*Juncus roemerianus*) are the dominant species in the salt marshes at the BSEP site. The marshes represent habitat for many important aquatic organisms that are preyed upon by a variety of terrestrial wildlife species (CP&L 2004).

Wildlife species in the vicinity of BSEP are typical of those found in the southeastern Coastal Plain. The upland communities support many species of birds, including hawks, woodpeckers, warblers, and sparrows; mammals such as white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), squirrels (*Sciurus* spp.), skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*); as well as a variety of snakes, toads, frogs and lizards. Wetlands such as the salt-marshes provide habitat for the American alligator (*Alligator mississippiensis*), raccoon (*Procyon lotor*), river otter (*Lontra canadensis*), and many species of wading birds (CP&L 2004).

There are eight transmission lines that were constructed to connect BSEP to the transmission system. The transmission line to the Barnard Creek substation crosses the Cape Fear River near the top of the estuary. The Whiteville transmission line crosses several pocosins and Green Swamp, which has been designated a National Natural Landmark (NPS 2005). The Whiteville transmission line also passes about 1 mi west of Lake Waccamaw State Park and approximately 2 mi south of Lake Waccamaw. The Holly Shelter Game Land in the Holly Shelter swamp is crossed by the Jacksonville transmission line. In northwest Pender County, the Wallace transmission line crosses the B. W. Wells Savannah, a 117-ac remnant of wetland savannah that supports 170 native plant species, some of which are considered rare (NCCLT 2001). The transmission line rights-of-ways do not cross any Federal or State parks. CP&L has partnered with the North Carolina Coastal Land Trust, the Conservation Trust for North Carolina, the Nature Conservancy, North Carolina Wild Flower Preservation Society, and the North Carolina Natural Heritage Program (NCNHP) to preserve unique and rare species within the transmission line rights-of way.

#### 4.2 Aquatic Resources

BSEP is surrounded by a diverse and complex aquatic ecosystem. Aquatic habitat types surrounding the plant include salt marshes, the river channel/estuary, and offshore regions (CP&L 1980). The plant is situated approximately 5.7 mi upstream from the mouth of the Cape Fear River (CP&L 1985). BSEP's cooling system draws water predominantly from the surface layer of the Cape Fear River ship channel through a 3-mi-long intake channel. Water is

## Appendix E

discharged to the Atlantic Ocean after flowing through a 6-mi discharge canal. The water is pumped approximately 2000 ft offshore through submerged pipes to the point of discharge (CP&L 1979).

The Cape Fear River is estuarine at the point where water is drawn into the intake canal. Estuaries are partially enclosed coastal areas where freshwater and saltwater mix. These areas are under tidal influence, but they are protected from the full force of the ocean by barrier islands, salt marshes, or other land forms. The species found in estuaries are specially adapted for life in this transitional area. Estuaries are considered to be among the most productive areas on earth (EPA 2005).

The region surrounding the BSEP intake canal entrance, just downstream of Sunny Point, is in an area that experiences a large tidal exchange (CP&L 1985). Salinity is influenced primarily by tidal conditions and the rate of freshwater inflow. A salinity gradient exists where runoff from the Cape Fear River mixes with water from the Atlantic Ocean. From Sunny Point upstream to Wilmington, the water is often two-layered, with the less-dense freshwater moving downstream over the more-dense seawater (CP&L 1980). Downstream from Sunny Point, the water is more uniformly mixed because of complex water circulation patterns, vigorous tidal action, and high exchange rates with the ocean. This portion of the estuary is shallow and irregular in shape, with many islands and channels that enhance mixing (CP&L 1980, 1985). Because the freshwater inflow from the Cape Fear River and its tributaries is highly variable, salinities at the intake may range from nearly 0 to 32 parts per thousand (ppt) (AEC 1974). During periods of average freshwater inflow, salinities near Sunny Point are generally in the range of 8 to 15 ppt (CP&L 1980). Minimum salinities are generally recorded in winter, and maximum salinities are generally recorded in late summer (CP&L 1985). Water temperatures in the estuary are influenced largely by changes in season, with the warmest temperatures (as high as 103°F) observed during late summer (CP&L 1985).

The Cape Fear Estuary serves as a nursery area for fish and shellfish larvae and juveniles. Some species, such as anchovy (*Anchoa* spp.) and gobies (*Gobionellus* spp., *Gobiosoma* spp.) spawn in the estuary, while others, such as Atlantic menhaden (*Brevoortia tyrannus*), spot (*Leiostomus xanthurus*), croaker (*Micropogonias undulatus*), and pinfish (*Lagodon rhomboides*) spawn in the ocean (PEC 2003). Salinity and temperature influence the spatial and seasonal distribution of these estuarine species (CP&L 1985). The ebb and flow of water in the estuary also contribute to the transport and/or retention of larvae and other organisms throughout the estuary (CP&L 1980).

Many species that inhabit waters in the vicinity of the BSEP have commercial or recreational value. Brown shrimp (*Farfantepenaeus aztecus*), pink shrimp (*F. duorarum*), and white shrimp (*Litopenaeus setiferus*) inhabit salt marshes, including Snow's Marsh, which borders the intake canal (CP&L 1980). The shrimp spawn in offshore waters and the post-larvae are recruited into the estuary where they find food and protection. As the shrimp mature, they migrate to deeper waters where commercial fishermen harvest them (AEC 1974). Croaker, an important food fish and sport fish, is another inhabitant of the salt marsh, including Snow's Creek (AEC 1974). Croaker spawn in the ocean during fall and winter. The young spend their first year in the low-salinity regions of the estuary and then move to the ocean. Examples of other species found in salt marshes near BSEP include blackcheek tonguefish (*Symphurus plagiusa*), striped anchovy (*Anchoa hepsetus*), Atlantic menhaden, and pinfish (AEC 1974).

In the river channel and estuary, developing larvae of brown, pink, and white shrimp, as well as blue crab (*Callinectes* spp.) can be found (AEC 1974). This portion of the estuary also supports the larvae of anchovy, croaker, gobies, spot, blackcheek tonguefish, Atlantic menhaden, and striped mullet (*Mugil cephalus*) (AEC 1974). The estuary supports larval fish year-round, although the species composition varies by season. Important adult fish using the estuary include gray sea trout (*Cynoscion regalis*), spot, croaker, bay anchovy (*Anchoa mitchilli*), summer flounder (*Paralichthys dentatus*), windowpane (*Scophthalmus aquosus*), American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), and blue backed herring (*Alosa aestivalis*) (AEC 1974).

The heated effluent is discharged into the offshore region at Oak Island. Larvae of shrimp, anchovies, gobies, spot, croaker, gray seatrout, pinfish, and menhaden have been recorded in this region (AEC 1974). Adults with some commercial value captured in this area include brown, pink, and white shrimp, blue crab, anchovy, spot, king fish (*Mentaicirrhus americanus*), croaker, thread herring (*Opistonema oglinum*), bluefish (*Pomatomus saltatrix*), drum (*Stellifer lanceolatus*), and sole (*Symphurus plagiusa*). Benthic organisms found in the mud and sand of this offshore area include snails, brittle star (*Ophiophragum* spp.), and polychaete worms (AEC 1974).

## 5.0 Evaluation of Threatened and Endangered Species

A total of 12 Federally listed threatened or endangered aquatic species under full or partial NMFS jurisdiction were identified as having the potential to be present in North Carolina waters in the vicinity of BSEP and its associated transmission line rights-of-way (NMFS 2005a). These include six whales, (sei whale [*Balaenoptera borealis*], blue whale [*Balaenoptera musculus*], fin whale [*Balaenoptera physalus*], right whale [*Eubalaena glacialis*], humpback whale [*Megaptera novaeangliae*], and sperm whale [*Physeter macrocephalus*]), five sea turtles (loggerhead turtle [*Caretta caretta*], green turtle [*Chelonia mydas*], leatherback turtle [*Dermochelys coriacea*], hawksbill turtle [*Eretmochelys imbricata*], and Kemp's ridley turtle [*Lepidochelys kempi*]), and one fish species, the shortnose sturgeon (*Acipenser brevirostrum*) (Table 2). NMFS has full jurisdiction over the whales and sturgeon. NMFS and the FWS share jurisdiction for the sea turtles, with NMFS having responsibility in the marine environment and FWS on nesting beaches.

In their letter dated February 4, 2005, NMFS also identified six Federal fish species of concern under their jurisdiction in North Carolina (Atlantic sturgeon [*Acipenser oxyrinchus oxyrinchus*], dusky shark [*Carcharhinus obscurus*], night shark [*Carcharhinus signatus*], speckled hind [*Epinephelus drummondhayi*], Warsaw grouper [*Epinephelus nigritus*], and sand tiger shark [*Odontaspis taurus*]) (Table 2) (NMFS 2005a). These species are not protected under the Endangered Species Act, but concerns about their status indicate they may warrant listing in the future.

The NRC staff reviewed life history information for all the aquatic threatened, endangered, and species of concern that have been identified in the vicinity of BSEP or its transmission line rights-of-way. The staff has also reviewed information provided by CP&L, FWS, NMFS, and the North Carolina Natural Heritage Program (NCNHP), regarding threatened and endangered species in the vicinity of the BSEP site (CP&L 2004; NCNHP 2004; NMFS 2005a, b, c; FWS

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2005b). The NRC has determined that the proposed action would either have *no effect* or *may affect, not likely to adversely affect* these species. The basis for each determination is discussed in the following paragraphs.

**Table 2.** Federally Listed Marine Species Reported From Counties Associated with BSEP and Its Transmission Line Rights-of Way

Species	Common Name	Federal Status <sup>(a)</sup>	Counties	Determination
<b>MAMMALS</b>				
<i>Balaenoptera borealis</i>	sei whale	E	(NC) <sup>(b)</sup>	no effect
<i>Balaenoptera musculus</i>	blue whale	E	(NC)	no effect
<i>Balaenoptera physalus</i>	fin whale	E	(NC)	no effect
<i>Eubalaena glacialis</i>	North Atlantic right whale	E	(NC)	no effect
<i>Megaptera novaeangliae</i>	humpback whale	E	(NC)	no effect
<i>Physeter macrocephalus</i>	sperm whale	E	(NC)	no effect
<b>REPTILES</b>				
<i>Caretta caretta</i>	loggerhead turtle	T(c)	Brunswick, New Hanover, Onslow, Pender	may affect, not likely to adversely affect
<i>Chelonia mydas</i>	green turtle	T(c,d)	Brunswick, New Hanover, Onslow	may affect, not likely to adversely affect
<i>Dermochelys coriacea</i>	leatherback turtle	E(c)	Brunswick, Onslow	may affect, not likely to adversely affect
<i>Eretmochelys imbricata</i>	hawksbill turtle	E(c)	(NC)	may affect, not likely to adversely affect
<i>Lepidochelys kempii</i>	Kemp's ridley turtle	E(c)	Brunswick	may affect, not likely to adversely affect
<b>FISH</b>				
<i>Acipenser brevirostrum</i>	shortnose sturgeon	E	Bladen, Brunswick, New Hanover, Pender	may affect, not likely to adversely affect
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon	C	Bladen, Brunswick, New Hanover, Pender	may affect, not likely to adversely affect

Table 2. (contd)

Species	Common Name	Federal Status <sup>(a)</sup>	Counties	Determination
<b>FISH</b>				
<i>Carcharhinus obscurus</i>	dusky shark	C (NC)		no effect
<i>Carcharhinus signatus</i>	night shark	C (NC)		no effect
<i>Epinephelus drummondhayi</i>	speckled hind	C (NC)		no effect
<i>Epinephelus nigritus</i>	Warsaw grouper	C (NC)		no effect
<i>Odontaspis taurus</i>	sand tiger shark	C (NC)		may affect, not likely to adversely affect

(a) E - endangered, T- threatened, C- species of concern

(b) (NC) - County-level listings are not available; the species has Federal listing status in North Carolina

(c) Nesting areas are under FWS jurisdiction, otherwise the species is under NMFS jurisdiction.

(d) Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

#### **Sei Whale**

The sei whale favors temperate, deep, offshore waters. Local distribution is thought to be linked to the distribution of their food source, which includes copepods, fish, or krill. Current sei whale population estimates are around 54,000 individuals (American Cetacean Society 2005). This species is not expected to enter the Cape Fear estuary or to be found near the BSEP discharge structure. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the sei whale.

#### **Blue Whale**

Although blue whales have been seen in coastal waters, they are found predominantly offshore (NMFS 2005b). This species is most frequently sighted in more northern waters, off eastern Canada. It is considered an occasional visitor in the U.S. Atlantic. This species is not expected to enter the Cape Fear estuary or to be found near the BSEP discharge structure. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the blue whale.

#### **Fin Whale**

Although fin whales are found in all oceans of the world, they prefer the vastness of the open sea (American Cetacean Society 2005). Precise estimates of population abundance are unavailable, but present populations may number around 40,000 in the northern hemisphere. This species is not expected to enter the Cape Fear estuary or to be found near the BSEP discharge structure. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the fin whale.



***North Atlantic Right Whale***

The majority of North Atlantic right whale females in the western North Atlantic population use wintering and calving areas off the southeastern United States, then move to summer feeding and breeding grounds in New England waters and to the north (NMFS 2005b). The majority of males do not migrate to the southern calving grounds, but males do frequent the northern waters in summer. Critical habitat for the species has been designated in coastal Florida and Georgia, but not in North Carolina. This species is not expected to enter the Cape Fear estuary or to be found near the BSEP discharge structure. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the North Atlantic right whale.

***Humpback Whale***

Humpback whales are seasonal migrants. They generally swim to polar waters in summer and tropical waters in winter. In the western North Atlantic, humpback whales feed during spring, summer, and fall along the eastern coast of the United States (NMFS 2005b). An increased number of sightings in the U.S. mid-Atlantic and southern states, including North Carolina, has been reported. These areas may be increasingly important habitat for juvenile humpback whales (NMFS 2005b). This species is not expected to enter the Cape Fear estuary or to linger along the coast near the BSEP discharge structure. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the humpback whale.

***Sperm Whale***

Sperm whales are uncommon in waters shallower than 300 m deep (NMFS 2005b). Because of their association with deep waters, it is unlikely that this species would be found near the BSEP. Therefore, the staff concludes that continued operation of BSEP over the 20-year license renewal term would have no effect on the sperm whale.

***Sea Turtles***

NMFS and the FWS share jurisdiction for the sea turtles, with NMFS having responsibility in the marine environment and FWS on nesting beaches. A Biological Opinion issued by the NMFS in 2000 addressed impacts to sea turtles specifically resulting from BSEP operation. The Biological Opinion concluded that the "BSEP is not likely to jeopardize the continued existence of the loggerhead, leatherback, green, hawksbill, or Kemp's ridley sea turtles" (CP&L 2004). More recently, a Biological Opinion comparing sea turtle loss from coastal seawater intakes to the losses from incidental take during shrimp trawling indicated that while "sea turtles entering coastal or inshore areas have been affected by entrainment in the cooling-water systems of electrical generating plants sea turtle mortality associated with these activities is relatively low and does not significantly affect the environmental baseline" (NMFS 2002).

BSEP holds an endangered species permit, issued on an annual basis by the North Carolina Wildlife Resources Commission (NCWRC), to tag sea turtles entrained in the intake canal, using methods in accordance with the FWS and NMFS sea turtle tagging protocols. BSEP also holds an Incidental Take Statement issued by NMFS (NMFS 2000), which authorizes the capture and relocation of sea turtles. The Incidental Take Statement proscribes takes by plant-

related injury or mortality to be limited to six loggerhead turtles, two Kemp's ridley turtles, three green turtles, one leatherback turtle, or one hawksbill turtle annually. These permits allow certain BSEP staff to possess and transport entrained or stranded sea turtles for the purpose of rehabilitation and/or release and the possession of dead stranded sea turtles for the purposes of disposition (NCWRC 2004). The permit requires notification of each stranding event within 24 hours, and submission of a written report within 48 hours of each stranding event.

Three sea turtle species have been collected, some as recently as July 2005, in the vicinity of the BSEP intake canal (BSEP 2005a). These were the loggerhead, green, and Kemp's ridley turtles. In 2004, the handling of 16 sea turtles by BSEP staff was reported to NMFS (BSEP 2005a). "Turtle-blocker panels" have been installed at the diversion structure, located at the entrance to the intake canal, to minimize the potential for sea turtles to enter the canal. BSEP staff regularly patrols the canal to look for turtles and to ensure the blocker panels are well maintained.

#### ***Loggerhead Turtle***

The loggerhead turtle is listed as threatened. The species occurs on beaches suitable for nesting from North Carolina to Florida (FWS 2005c). The loggerhead may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship canals, and the mouths of large rivers (FWS 2005c). Nesting season is generally between May and November. Nesting occurs on suitable beaches from North Carolina to Florida, with primary nesting beaches found in Florida. Loggerhead turtle nesting in North Carolina occurs only on the Atlantic Coast beaches, and does not occur in the Cape Fear River estuary, or anywhere near the BSEP site or associated transmission line rights-of-way. However, loggerhead turtles were the most common species observed at the BSEP in 2004. Sixty-nine percent of the sea turtles handled were loggerheads.

The staff visited the site and reviewed the life history information on the loggerhead turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the loggerhead turtle.

#### ***Green Turtle***

The green turtle is listed as threatened. In the western North Atlantic Ocean, this species is found from Massachusetts to Mexico. Nesting in the United States is limited to between 300 and 1000 nests annually on Florida's east coast (FWS 2005d). Green turtles are generally found in shallow waters inside reefs, bays, and inlets and are attracted to lagoons and shoals with an abundance of marine grass and algae (FWS 2005d). Approximately 12 percent of the sea turtles handled at the BSEP in 2004 were green turtles.

The staff visited the site and reviewed the life history information on the green sea turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the green turtle.

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### ***Leatherback Turtle***

The leatherback turtle is listed as endangered. Nesting in the United States occurs mainly in Florida, but has also occurred in Georgia, South Carolina, and North Carolina. No nests have been observed at the BSEP site. The species rarely enters the estuary. Only historical sightings of the leatherback (last observed more than 20 years ago) have been documented in Brunswick County (NCNHP 2004).

The staff visited the site and reviewed the life history information on the leatherback turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the leatherback turtle.

### ***Hawksbill Turtle***

The hawksbill turtle is listed as endangered. In the United States, nesting is restricted to the southeast coast of Florida and the Florida Keys (NMFS 2005b). The hawksbill has been reported from all the eastern seaboard, but sightings north of Florida are rare. This species has not been documented at the BSEP site.

The staff visited the site and reviewed the life history information on the hawksbill turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the hawksbill turtle.

### ***Kemp's Ridley Turtle***

The Kemp's ridley turtle is listed as endangered. Nesting occurs in Tamaulipas, Mexico, and sometimes in Texas. Adults of this species are found primarily in the Gulf of Mexico, but immature turtles are found along the Atlantic coast as far north as Canada (FWS 2005e). The Kemp's ridley turtle is found in shallow coastal waters, often in association with red mangrove shorelines (FWS 2005e). Nearly 19 percent of the sea turtles handled at the BSEP in 2004 were Kemp's ridley turtles.

The staff visited the site and reviewed the life history information on the Kemp's ridley turtle. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the Kemp's ridley turtle.

### ***Shortnose Sturgeon***

The shortnose sturgeon is Federally listed as endangered. NMFS has jurisdiction for anadromous fish, including the shortnose sturgeon. A Biological Opinion issued by NMFS in 2000 addressed impacts to shortnose sturgeon specifically resulting from BSEP operation. The Biological Opinion stated that "NMFS believes the likelihood for shortnose sturgeon to be adversely affected by the proposed action is low enough to be considered discountable.

Therefore NMFS has determined it is unlikely that a shortnose sturgeon would be adversely affected by the proposed action" (NMFS 2000). No sturgeon individuals were collected at BSEP before 1998 (CP&L 1998). Nine adult shortnose sturgeon were captured in the Cape Fear River between 1987 and 1998 (CP&L 1998). A tagging and tracking study conducted between 1990 to 1993 managed to capture only eight adult shortnose sturgeon in the lower Cape Fear River (Moser and Ross 1995). Five tagged fish occupied river kilometers 16 through 96 from early January through May. This stretch of the river is upstream of the BSEP intake canal. NCNHP data indicate that shortnose sturgeon have been observed in the vicinity of the point where the Cape Fear River is crossed by the Jacksonville transmission line right-of-way.

The staff visited the site and reviewed the life history information on the shortnose sturgeon. Based on this information, information obtained from NCWRC, FWS, NMFS, and NCNHP, and information obtained from BSEP on endangered and threatened species procedures, the staff concludes that continued operation of BSEP over the 20-year license renewal term may affect, but is not likely to adversely affect, the shortnose sturgeon.

### ***Species of Concern***

Several of the species of concern are not expected to be present near the BSEP site. The dusky shark avoids low salinities and is not commonly found in estuaries (NMFS 2005c); the speckled hind, Warsaw grouper, and night shark are all deep-water species, preferring much greater depths than those found in the vicinity of BSEP (NMFS 2005c). Two other species of concern are more likely to be present in the vicinity of the BSEP. The sand tiger shark is a coastal species and may generally be found in the surf zone to depths of 75 ft (NMFS 2005c). Juvenile sand tiger sharks are found in estuaries of the eastern United States and, therefore, may be present in the vicinity of BSEP. The Atlantic sturgeon is relatively common in the lower Cape Fear River (Moser and Ross 1995). Juveniles were found to prefer waters greater than 10 m deep in the vicinity of the saltwater and freshwater interface.

## **6.0 Conclusions**

The staff has identified eight Federally listed endangered, threatened, and species of concern under full or partial NMFS jurisdiction that have a reasonable potential to occur in the vicinity of BSEP or along the transmission line rights-of-way and, therefore, may be affected by continued operations of BSEP and maintenance of the associated transmission line rights-of-way. Additionally, the staff identified 10 additional species that have been reported to occur in the counties containing BSEP or associated transmission rights-of-way. However, because of known habitat requirements, these species are not likely to be near the BSEP or associated transmission line rights-of-way and, therefore, would not be affected by continued operations at BSEP. CP&L has procedures in place to protect endangered or threatened species if they are encountered at the plant site or along transmission line rights-of-way and provides training for employees on these procedures (BSEP 2003, 2005b). In 1993, CP&L signed a Memorandum of Understanding with the North Carolina Department of Environment, Health, and Natural Resources to preserve and protect rare, threatened, and endangered species and sensitive natural areas occurring on transmission line rights-of-way (CP&L and NCDEHNR 1993).

The NRC staff has analyzed the species that are likely to be in the vicinity of BSEP or the associated transmission lines, the known distributions and records of those species, the ecological impacts of the operation of BSEP and the operation and maintenance of the

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associated transmission rights-of-way, the effects of these practices on the species potentially present, and the mitigation measures that CP&L has already implemented. Based on this analysis, the staff has determined that continued operation of BSEP and its associated transmission lines for an additional 20 years would not have an adverse impact on any threatened or endangered species or species of concern.

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SEP 19 2005

F/SER31:WW

Pao-Tsin Kuo  
 License Renewal and Environmental Impacts  
 Division of Regulatory Improvement Programs  
 Office of Nuclear Reactor Regulation  
 Washington, DC 20555-0001

Dear Mr. Pao-Tsin Kuo:

This is in response to the Nuclear Regulatory Commission's (NRC) letter dated August 9, 2005, and attached biological assessment (BA) dated August 2005 regarding license renewal of the Brunswick Steam Electric Plant. In your letter and BA, you requested informal consultation for the continued operation of the Brunswick Steam Electric Plant for the next 20 years and its potential impact on listed species under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS). This letter also refers to the currently effective Biological Opinion and incidental take statement issued by NMFS January 20, 2000. The Brunswick Steam Electric Plant is located on the Cape Fear River Estuary in Brunswick County, North Carolina.

On January 20, 2000, NMFS issued a biological opinion and incidental take statement concerning the operation of the cooling water intake system of the Brunswick Steam Electric Plant over the next 20 years. Section 7 of the Endangered Species Act (ESA) outlines four general conditions for reinitiating consultation: 1) The amount or extent of incidental take is exceeded; 2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; 3) the action is modified in a manner causing effects to listed species or critical habitat not previously considered; 4) a new species is listed or critical habitat designated that may be affected by the action.

Based on the information provided in the August 2005 BA and annual reports on incidental take received from the Brunswick Steam Electric Plant since issuance of the January 20, 2000, biological opinion, a need for reinitiation does not exist. The facility has not exceeded nor approached its allowable incidental take. The BA indicates that there is no new information on the effects of the plant operation not previously considered, and the action has not been modified in such a manner as to cause effects to listed species or critical habitat not previously considered. No new species or critical habitat have been listed or designated in the area of the Brunswick Plant that may be affected by its operation.





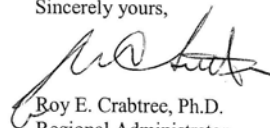
## Appendix E

In accordance with Section 7 of the ESA and the requirements for reinitiation, NMFS does not deem reinitiation appropriate at this time and considers its January 20, 2000, biological opinion in full force and effect for the continued operation of the Brunswick Plant until such time as one of the 4 criteria for reinitiation under Section 7 of the ESA is met.

This concludes the NRC's consultation responsibilities under the ESA for species under NMFS' purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action.

Thank you for your continued cooperation in the conservation of threatened and endangered species under NMFS purview. If you have any questions about the information contained in this letter, please contact Mr. Walt Wilson, fisheries biologist at (727) 824-5327.

Sincerely yours,



Roy E. Crabtree, Ph.D.  
Regional Administrator

cc: F/PR3  
F/SER43 Thompson

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