

November 28, 2007

MEMORANDUM TO: William F. Burton, Chief
Environmental Projects Branch A
Division of Site and Environmental Reviews
Office of New Reactors

FROM: H. Brent Clayton, Chief /RA/
Environmental Technical Support Branch
Division of Site and Environmental Reviews
Office of New Reactors

SUBJECT: TRIP REPORT - SEPTEMBER 17-19, 2007, PRE-APPLICATION
READINESS ASSESSMENT (T-2) FOR A COMBINED LICENSE
APPLICATION AT THE SHEARON HARRIS SITE

This report summarizes the NRC staff's September 17-19, 2007, pre-application readiness assessment related to the environmental portion of a future Combined License (COL) application for two additional units at the Shearon Harris site. Progress Energy has indicated its intent to submit a COL application for this site in January 2008.

The purpose of this visit was to allow the NRC staff to assess the state of readiness of the applicant's Environmental Report (ER), a key component of the COL application, during its development. The visit took place at Progress Energy's Corporate Headquarters in Raleigh, North Carolina. Enclosure 1 provides a list of attendees. Enclosure 2 is the agenda used during the visit. Enclosure 3 is a summary of the more significant issues that were identified. Note that this assessment was conducted several months prior to the applicant's planned COL application date and the staff did not expect the Environmental Report (ER) to be complete at this stage. Furthermore, the applicant was aware of and identified to the NRC staff, many of the issues described in Enclosure 3. In summary, the NRC staff did not identify any issues related to the Environmental Report (ER) that would indicate it would not be ready by the planned date of application. However, this was not a formal or comprehensive staff review and additional issues could be identified during the NRC staff's formal review after the application is submitted.

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The final pre-application activity, in which the environmental staff was involved in a public information meeting, was held on September 18, 2007 in Apex, North Carolina.

Project No.: 743

Enclosures: As stated

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DATE	10/ 17 /07	10/ 19/07	10/10/07	11/28/07

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**Shearon Harris Combined License
Pre-Application Readiness Assessment on September 17-19, 2007**

List of Attendees

NAME	AFFILIATION
William Burton	U.S. NRC
Richard Emch	U.S. NRC
Mike Masnik	U.S. NRC
Kenneth See	U.S. NRC
Michael Willingham	U.S. NRC
Dave Anderson	Pacific Northwest National Lab
Doug Elliot	Pacific Northwest National Lab
Phil Meyer	Pacific Northwest National Lab
Van Ramsdell	Pacific Northwest National Lab
Jeff Ward	Pacific Northwest National Lab
Ray Bogardus	CH2M Hill
Bryan Burkingstock	CH2M Hill
Scott Freeman	CH2M Hill
George Howroyd	CH2M Hill
Wayne Schofield	CH2M Hill
Eric Woods	CH2M Hill
Lorin Young	CH2M Hill
Kira Zender	CH2M Hill
Rick Zeroka	CH2M Hill
John Crutchfield	Progress Energy
Cristina Ionesca	Progress Energy
Bob Kitchen	Progress Energy
Jan Kozyra	Progress Energy
Jim Nevill	Progress Energy
Paul Snead	Progress Energy

**Readiness Assessment Trip Report (T-2)
Shearon Harris Units 2 and 3
(Progress Energy)
Combined Operating License
September 17-19, 2007**

Monday, September 17, 2007

- 0745 Meet at Progress Energy Corporate Headquarters, Raleigh, North Carolina
- Welcome, introductions, and opening remarks
 - Background presentations on status of the ER, alternative site selection, transmission lines, and need for power
 - Review of the ER
- 1200 Lunch
- 1230 Continue ER review
- 1700 Adjourn

Tuesday, September 18, 2007

- 0745 Meet at Progress Energy Corporate Headquarters, Raleigh, North Carolina.
- Continue ER review
 - Technical discussions
- 1200 Lunch
- 1230 Continue review and discussions of the ER
- 1700 Adjourn
- 1800 NRC sponsored open house in Apex, North Carolina
- 1900-2130 Public outreach meeting, Apex, North Carolina

Wednesday, September 19, 2007

- 0900 Meet at Progress Energy Corporate Headquarters, Raleigh, North Carolina.
- Complete ER review and technical discussions.
 - Close-out discussion

**Additional Information Summarizing the
NRC Environmental Staff Readiness Assessment Visit for the Shearon Harris Site,
New Hill, North Carolina
Location: Progress Energy's Corporate Headquarters
Raleigh, North Carolina
September 17-19, 2007**

Meteorology and Air Quality

In general, the required information is available and presented in the environmental report (ER). Information missing from the ER is readily available. In some cases, particularly in presentation of data from the onsite meteorological system, far more information is presented than is used in the analysis presented in the remainder of the ER. One area of inconsistency was noted. The meteorological data used as input to the severe accident consequence analysis (MACCS2) is different than that used in the other analyses. The data used are from a recent time period that Progress chose not to use in the other analyses because of the way in which wind speeds were averaged. However, the data used as input to MACCS2 were used as input to the code for the severe accident mitigation alternatives (SAMA) analysis for license renewal of Harris Unit 1.

Accident Analysis

A portion of the accident analyses for two additional units at the Harris site are based on Rev 16 of the AP1000 design control document (DCD), which has not been approved by the NRC. Should NRC not approve Rev 16 prior to completion of the environmental impact statement (EIS); the applicant would need to provide the analyses as part of the Combined Operating License Application (COLA). The inconsistency in meteorological data was noted and discussed. The absence of a value for the average individual early fatality and latent cancer risk from the ER was also noted. The staff informed the applicant that it will need these values to develop the environmental impact statement (EIS).

Hydrology

The draft ER has a better discussion of the water balance than was apparent during the T-1 visit, although the ER description should be better organized. Overall additional analysis of the potential impacts of the facility on water supply and water quality associated with the Cape Fear River is needed.

The draft ER did not assess future growth in water demand for the region. The only future water demand included was anticipated demand in the year 2010 obtained from local government source documents. Since the facility is not expected to be operational until 2018 and the region is experiencing significant growth, it is suggested that additional assessment of the growth in water demand be performed.

There was no discussion in the ER of water needs for the management of tritium and cesium concentrations in Harris Reservoir other than occasional statements that an extra 20 cfs (in excess of the required makeup) will be withdrawn from the Cape Fear River, discharged to the main reservoir, and then spilled to Buckhorn Creek. Existing data on measured tritium

concentrations in the reservoir need to be provided and discussed in the ER. The staff was told that the data will be incorporated in the ER.

The draft ER did not contain engineering design drawings for the intake on the Cape Fear River, the intake on the main reservoir, the discharge structure for river water (into the main reservoir), or the blowdown discharge. No analysis of the thermal load to the main reservoir was included.

The Holly Springs Dam located on a tributary of the main reservoir may be impacted by raising the level of the main reservoir, but the impacts on this dam were not discussed.

Ecology

The description of the ecological resource in Chapter 2 is limited. For example, there are various references in the ER to ongoing quarterly monitoring studies in Harris Reservoir, but the most recent information presented is from 2004; the discussion of fish in the reservoir focuses on recreationally important species with little ecological discussion (e.g., predator/prey interactions, food web dynamics). Further, the ER contains no discussion of the aquatic assemblages in the Cape Fear River in the vicinity of the proposed intake even though there is a fossil energy plant owned by the applicant approximately two miles upstream.

Similarly, the description of the impacts of construction in Chapter 4 is missing some essential information. The ER contained no discussion of impacts associated with the construction of the Raw Water Pumping House on the Cape Fear River. The ER contained virtually no description of the process that would be followed to raise the level of the Harris Reservoir from 220 to 240 ft. over a 42-month period. In Chapter 5, the lake is considered filled.

In Chapter 5, the ER contains no discussion of the existing impacts to Harris Reservoir due to the operation of Unit 1, or to the Cape Fear River due to the operation of the fossil energy plant upstream of the proposed Cape Fear intake for Units 2 and 3. The analysis of impacts could benefit from a comparison of future impacts associated with the new units to the existing impacts both in the Harris Reservoir and the Cape Fear River. Impingement, entrainment, and thermal impacts are discussed in qualitative terms even though some historical data from the fossil plant is available. Without quantitative data, it is difficult to conduct the independent evaluation required by NEPA. The operational impacts discussion in the ER references compliance with EPA Phase I rules under section 316(b) of the Clean Water Act. Compliance with EPA's Phase I regulations does not exempt the NRC from the National Environmental Policy Act (NEPA) responsibility of assessing the impacts to aquatic organisms from the intake related effects of impingement and entrainment.

Finally, the proposed monitoring study for the reservoir does not include methodology needed to assess the short- or long-term impacts of adding river water to a reservoir.

Land Use

The following set of expected items was either not sufficiently well-covered or missing entirely:

- No discussion of mineral rights
- Insufficient information on agricultural production in the vicinity and region

- A nonstandard approach was used to delineate the exclusion area, low-population zone, and the emergency planning zone
- A nonstandard approach was used to define the land uses in vicinity and region
- Better maps and description of the potentially affected transmission corridors are needed.

Socioeconomics

During the T1 visit the NRC staff noted that additional information was needed related to the local and regional labor market and justification was needed for assumptions related to the potential work force. The ER does not include this information in sufficient detail for the staff to conduct an independent review.

Erroneous property tax data was included in the ER.

The draft ER does not contain an adequate discussion of present and projected community services: police and fire capabilities, and emergency planning responsibilities, location of hospitals, number of medical doctors, and specialized health facilities, including present and projected patient capacity.

Cultural Resources

No significant issues were identified.

Environmental Justice

Information about distinctive communities, including the characteristics of the State, Native American Tribes, and the local region (including downstream areas) that may identify them as distinctive communities (e.g., historic districts, tourist attractions, cultural resources, and visual resources) has not been fully described. No discussion of tribal information is provided. The ESRP definition of distinctive is not referenced in this section.

A discussion of pre-existing health conditions, resource dependencies, participation in customs and practices of these communities (such as subsistence fishing or agriculture) is not provided. The process for searching for the information relevant to these areas of concern has not been documented in the ER. It appears that very little effort has been made to contact agencies, communities, or researchers that would have familiarity with the vicinity or region.

Need for Power

The Need for Power section in the draft ER provides an adequate justification that the annual North Carolina Integrated Resource Planning (IRP) and North Carolina Utilities Commission (NCUC) reports meet the four NRC criteria (systematic, comprehensive, subject to confirmation, and responsive to forecasting uncertainty). It also discusses how a certificate of “public convenience and necessity” helps to ensure that there is an actual need for power. The IRP and NCUC processes are likely to be sufficient to meet the NRC’s criteria for demonstrating

need for power. However, the results and conclusions of the State process still need to be included in the ER as the bases of the NRC review and conclusions.

Benefits and Costs

The table provided was difficult to understand, and contained errors and apparent inconsistencies. Again, erroneous property tax data was included in the report.

General

The ER contains many tables of data that add little to the discussion of environmental impacts. Examples are found in the meteorology and aquatic ecology discussions. In some cases in the aquatic ecology discussion, the units of measure appear incorrect (mg/L instead of ug/L), and in nearly all cases, there are concentrations reported as undetected without an accompanying detection limit. Many of the tables are composed primarily of columns of "no information" designations. In most cases, simple summary tables or graphs would be more informative. Specific examples were cited during applicant meetings.

Conclusion

Based on its review of information during the September 17-19, 2007 visit, the staff's main areas of concern are the potential aquatic impacts to the Cape Fear River due to water withdrawals for Harris Reservoir, and the issue of water availability, future growth, and increases in water demand on the Cape Fear basin. The NRC staff did not identify any issues related to the environmental portion of the COL application that would indicate that it would not be ready by the planned date of application submittal. However, this was not a formal or comprehensive staff review and additional issues could be identified during the NRC staff's formal review after the application is submitted.

The final pre-application activity, the NRC sponsored open house and public information meeting, was held on September 18, 2007. Progress Energy plans to submit the COL application for the Harris site in January 2008.