October 12, 2007

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

Richard P. Raione, Chief
Environmental Projects Branch B
Division of Site and Environmental Reviews
Office of New Reactors

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

FROM: Michael T. Masnik, Senior Project Manager ***/RA/ Irene Yu for***
Environmental Technical Support Branch
Division of Site and Environmental Reviews
Office of New Reactors

SUBJECT: TRIP REPORT - JULY 23 - 24, 2007, PRE-APPLICATION READINESS ASSESSMENT (T-2) FOR COMBINED LICENSE APPLICATION AT THE LEE SITE

This report summarizes the staff's July 23 - 24, 2007, pre-application readiness assessment related to the environmental portion of a future combined license (COL) application for the Lee site. Duke Energy has indicated its intent to submit a COL application for this site in December 2007.

The purpose of this visit was to allow the staff to assess the readiness of the applicant's Environmental Report (ER), a key component of the COL application. The visit took place at the offices of the applicant's primary contractor, Enercon, in Kennesaw, Georgia. 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 related to the ER. In summary, the staff did not identify any issues related to the 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 staff's formal review after the application is submitted.

Project No.: 742

Enclosures: As stated

CONTACT: Michael Masnik, NRO/DSER/RENV
(301) 415-1191

October 12, 2007

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

Richard P. Raione, Chief
Environmental Projects Branch B
Division of Site and Environmental Reviews
Office of New Reactors

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

FROM: Michael T. Masnik, Senior Project Manager ***/RA/ Irene Yu for***
Environmental Technical Support Branch
Division of Site and Environmental Reviews
Office of New Reactors

SUBJECT: TRIP REPORT - JULY 23 - 24, 2007, PRE-APPLICATION READINESS ASSESSMENT (T-2) FOR COMBINED LICENSE APPLICATION AT THE LEE SITE

This report summarizes the staff's July 23 - 24, 2007, pre-application readiness assessment related to the environmental portion of a future combined license (COL) application for the Lee site. Duke Energy has indicated its intent to submit a COL application for this site in December 2007.

The purpose of this visit was to allow the staff to assess the readiness of the applicant's Environmental Report (ER), a key component of the COL application. The visit took place at the offices of the applicant's primary contractor, Enercon, in Kennesaw, Georgia. 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 related to the ER. In summary, the staff did not identify any issues related to the 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 staff's formal review after the application is submitted.

Project No.: 742

Enclosures: As stated

CONTACT: Michael Masnik, NRO/DSER/RENV
(301) 415-1191

DISTRIBUTION: See Next Page

ADAMS ACCESSION No. ML072250160

OFFICE	PM:DSER/RENV:NRO	LA:DSER/RAP2:NRO	PM:DSER/RENV:NRO	BC:DSER/RENV:NRO
NAME	MMasnik *w/comments*: srm	ARedden	IYu	BClayton
DATE	09/20/07	10/10/07	10/10/07	10/12/07

OFFICIAL RECORD COPY

Memo to William F. Burton, et al. From Michael T. Masnik dated: October 12, 2007

SUBJECT: TRIP REPORT - JULY 23 - 24, 2007, PRE-APPLICATION READINESS ASSESSMENT (T-2) FOR COMBINED LICENSE APPLICATION AT THE LEE SITE

DISTRIBUTION:
RAP1 R/F
RidsNroDserRap1
RidsNroDserRap2
RidsNroDserRenv
BClayton
WBurton
RRaione
LTello
MMasnik
SCoffin
IYu
VRamsdell, PNNL
EHickey, PNNL

Lee Combined License
Pre-application Readiness Assessment on July 23 - 24, 2007

List of Attendees

NAME	AFFILIATION
Michael Masnik	U.S. Nuclear Regulatory Commission (NRC)
Michael Willingham	NRC
William “Butch” Burton	NRC
Harriet Nash	NRC
Andrew Kugler	NRC
Paul Kallan	NRC
Irene Yu	NRC
Linda Tello	NRC
Sophie Le	NRC
Kristina Banovac	NRC
Van Ramsdell	Pacific Northwest National Laboratory (PNNL)
Amoret Bunn	PNNL
Philip Meyer	PNNL
Nona Diediker	PNNL
Kristi Branch	PNNL
Gabe Salamon	Enercon
Marvin Morris	Enercon
Paul Loza	Enercon
Brynn Fredette	Enercon
Rachel Turney-Work	Enercon
Bill Wenstrom	Enercon
David Bean	Enercon
JP Logatto	Enercon
Jeff Laughlin	Enercon

Lee Combined License
Pre-application Readiness Assessment on July 23 - 24, 2007

List of Attendees

NAME	AFFILIATION
Tracy Brown	Enercon
Richard Grumbir	NuStart
Neil Haggerty	NuStart
Kyle Turner	McCallum-Turner
Chris Nolan	Duke Energy
Peter Hastings	Duke Energy
Bob Mohr	Duke Energy
Janice Hager	Duke Energy
Ted Bowling	Duke Energy

Lee Environmental Report
Readiness Assessment Visit T-2
Agenda

July 23, 2007

7:45 Coffee and Sign In @ Enercon Offices – Kennesaw, GA

8:00 Welcome and Introductions

8:15 Brief Overview of Lee Project

8:30 Breakout to Technical Groups/Start ER Review (Nuclear Regulatory Commission)

12:00 Lunch

1:00 Breakout to Technical Groups – Continue ER review (NRC), NRC began meeting with corresponding applicant experts

4:45 End of Day Summary

July 24, 2007

7:45 Coffee and Sign in @ Enercon Offices – Kennesaw, GA

8:00 Welcome and Introductions

8:15 Breakout to Technical Groups - Continue ER Review as Needed (NRC), NRC met with corresponding applicant experts

8:15 Transmission Line Discussion

10:00 Need for Power Discussion

12:00 Lunch

1:00 Breakout to Technical Groups – Continue ER review, NRC met with corresponding applicant experts

4:45 End of Day Summary

Additional Information Summarizing the
Lee Nuclear Regulatory Commission Environmental Staff Readiness Assessment
Location: Enercon Offices, Kennesaw, Georgia
July 23 - 24, 2007

As a result of the July 23-24, 2007 visit to Kennesaw, Georgia, the staff has identified the following issues or concerns:

Inconsistencies and Omissions

During the review, the staff identified numerous inconsistencies within the draft environmental report (ER), and between the draft ER and information provided to the review team during the review. Duke Energy representatives did acknowledge that some recent siting decisions had not been propagated throughout the document. Examples of areas where inconsistencies were noted by the U.S. Nuclear Regulatory Commission staff include:

- 7Q10 values for the Broad River (minimum 7-day average flow in a 10-year period)
- The assignment of the level of impact for the various socioeconomic sections
- Station wastewater discharge location

The staff noted that in a number of areas information appears to be incomplete or missing from the draft ER. Duke Energy and Enercon staff indicated during the discussion that much of the missing information is in-hand or otherwise readily available. Examples of missing and incomplete information include:

- Site stormwater drainage system description
- Land use, transmission lines, socioeconomic and environmental justice (EJ) information for alternative sites
- Discussions of aquatic and terrestrial species of special interest
- Impacts of construction of transmission lines on aquatic and terrestrial ecology

Unfinished Studies

The staff noted that a number of supporting environmental studies that will provide information for the ER have not been completed. Ongoing and planned studies include:

- Cultural resource surveys of the rail spur, and Jackson Furnace sites
- Thermal impact modeling of blowdown to the Broad River
- Location of transmission line corridors

Hydrology

As mentioned above, there were numerous inconsistencies in the draft ER, including the river flow data and reported values for mean river flow, 7Q10, intake flows, consumptive use, and future water use. For example, values of 7Q10 presented were 379, 402, and 479 cfs at different locations in the report.

Probable concentrations of natural and added constituents in the station blowdown to the Broad River were not listed. Likely concentrations of constituents in the blowdown are necessary to fully assess water quality impacts. The staff expects the applicant to also assess the impact of the operational concentration factor on both natural and added constituents and compare the values to South Carolina State water quality standards.

The 7Q10 computation was not clear and the results in the Devine Tarbell & Associates, Inc. report were self-contradictory. A plot of the 7-day rolling average flow versus a recurrence interval gave a 10-year recurrence flow of about 350 cfs while a value of 479 cfs was reported.

A description of the site stormwater drainage program is expected to be included in the final ER.

According to Duke Energy staff, wastewater held in the auxiliary holding pond will be pumped up the hill and discharged with the blowdown. This contradicts the draft ER.

There is a submerged ridge in the low-flow reservoir. Duke Energy staff reported that this ridge would not affect the storage of the reservoir, but the method of computing the storage volume is not described in the draft ER, which makes it difficult to independently assess this conclusion.

Terrestrial and Aquatic Ecology

Section 2.4 of the draft ER includes aquatic monitoring results from Cherokee ER (1975), U.S. Federal Energy Regulatory Commission licensing of 99 Island Dam (1997), South Carolina Department of Natural Resources special study (2003) and characterization for ER (2006) of fish in Broad River. However, there was no sampling at the proposed intake and discharge locations on the Broad River. Either the ER should provide a discussion as to why the available data are appropriate (both spatially and temporally) for assessing aquatic impacts in the vicinity of the proposed intake and discharge or Duke Energy should conduct sampling in these areas.

Section 2.4 includes monitoring results for terrestrial species from the Cherokee ER (1975) and the draft ER. However, it is difficult to determine if the reconnaissance data in the ER is from the 1970s or more recent.

For both aquatic and terrestrial species the ER information on the life histories and distribution for the species of special interest is insufficient to properly assess impact.

Transmission Corridors

The ER did not identify the transmission line right-of-way (ROW) that would tie the new units to the grid. A considerable number of alternative routes were identified, but no probable or a likely route was described. In discussions with Duke Energy employees, the staff was told that final route selection will take place prior to submission of the application, and the preferred route will be identified in the ER submitted in support of the application. The staff expects this information to be focused on land use, wetlands, endangered species, and impacts on residential use.

Assumed Compliance

Several conclusions in Sections 4 and 5 of the draft ER are based on “assumed compliance” with permits (e.g., National Pollutant Discharge Elimination System) or other plans (e.g., stormwater plans, corridor maintenance plans). The staff expects the applicant to provide an assessment of impact from likely or proposed values used in the analyses. The staff does not consider a statement that the impact will be acceptable/small based on presumed compliance with future permits is sufficient for a National Environmental Policy Act (NEPA) assessment.

Use of Generic Conclusions

Sections 4 and 5 of the draft ER included analysis of impacts based on NUREG-1437 (Generic Environmental Impact Statement for License Renewal of Nuclear Plants) Category 1 and 2 designations used in the reactor license renewal reviews. Conclusions of Category 1 and 2 are not appropriate for new reactors because the analysis was based on the review of the 104 operating reactors. Furthermore, NUREG-1437 does not address construction related impacts. The staff expects the application to provide site-specific information to support the conclusions of impact presented in the application.

Cultural and Historic Resources

The issue regarding whether or not the discharge pipeline will be attached to the dam needs to be resolved because the dam is proposed for national listing, this could be a significant issue from a cultural resource standpoint.

The staff expects the additional surveys of the rail spur and Jackson Furnace sites to be completed, and incorporated into the final ER. The transmission corridor studies will occur at a later date once the ROW agreements have been made with landowners.

Socioeconomic and Environmental Justice

The staff expects the assessment framework and methodology used by the applicant to be clarified. It is not clear, for example, what the baseline population and employment projections are based on and how the assumptions used to generate these projections match or differ from what was found in discussions with local knowledgeable resources about future community and vicinity plans.

Land Use and Transmission Lines

The staff expects the final ER to consider off-site impacts on land use as a consequence of growth. These indirect impacts are not adequately addressed, especially given the large expected workforce and the absence of zoning or land use controls outside the municipalities. Given the transportation routes, a discussion of worker relocation patterns is also expected to properly characterize the impact.

Need for Power

It is not clear that there will be an independent review of the applicant's need for power analysis in time to support the staff's review. Duke Energy submits its annual plan and forecast information to both the North Carolina and South Carolina public utility commissions. North Carolina reviews the plan, holds public hearings on it and, if acceptable, approves it on an annual basis. South Carolina does not. South Carolina does not issue any formal findings in regards to the need for power until it reviews a submitted Certificate of Public Convenience and Necessity (CPCN) from the applicant, requesting South Carolina approval for a new plant. Duke Energy does not plan to submit the CPCN until late 2007, with approval expected in late 2008.

The draft ER lacked information on system capabilities and needs, and the interties with, portions outside the Duke Energy service area.

The draft ER lacked a discussion of past and projected future energy mix, and the reasons driving changes.

Alternatives

The draft ER focused on information for the Duke Energy service area. But for alternatives ESRP 9.3 asks for information for the region because power might be available from outside of the Duke Energy system.

Decommissioning costs were not discussed in the draft ER. Neither were the escalation costs for components and maintenance and the discount rate.

The site selection process used by the applicant is described in general terms. But the staff would expect a greater level of detail to be provided. As an example, Table 9.3-2 provides values for factors used to screen the Region of Interest (ROI) for potential sites. But no basis for the values is given even though the values appear to differ from the referenced Electric Power Research Institute (EPRI) guidance document.

There are no descriptions or details given for the potential sites, for the candidate sites that were not used as alternative sites, and for alternative site identified as "Duke 31." At a minimum, the staff would expect more detail on the latter site to allow it to compare that site to the proposed site.

In some of the sections that describe the impacts at the proposed and alternative sites, the applicant does not ever reach a conclusion on the impact level.

There is little or no discussion of the data sources used and, in particular, of any field investigations at the alternative sites as well as the use of data from 1970s era licensing reviews without information to support the continued validity of the data.

The draft ER did not include a discussion of alternative locations for the intake and discharge. Some aspects of the discussion of design alternatives (e.g., different intake screens) appeared to be lacking.

The relative costs (capital and organization & method) of the alternatives were not included. This applies to all of the alternatives areas.

The discussion of water treatment alternatives appears to rely on the 1975 analysis for the original plant. However, it seems certain that options for water treatment have evolved since then.

Additional maps of the proposed transmission line corridors were not provided to show aspects such as locations of parks and wildlife refuges, proximity to roads, airports and railroads, and land uses along the corridors.

Cost/Benefit Comparison

The draft ER did not quantify some benefits for which at least an estimate seems possible. Examples include taxes and wages.

The draft ER did not discuss the benefits or costs of alternatives to the proposed action. Table 10.4-3 has some comparison of the proposed site to two of the alternative sites. But for the most part it indicates no difference between the sites.

In a related note, the section only addresses two of the three alternative sites. This appears to be an artifact of this section being Rev A, while the alternative sites section is Rev C.

The draft ER doesn't include the costs and benefits of the new transmission lines.

The draft ER doesn't include some of the impacts of the fuel cycle (e.g., fossil emissions from the fuel manufacturing process).

Inconsistencies in the level of impact assigned to different aspects of the socioeconomic assessment (e.g., housing, transportation/roads, schools) in different sections of the ER raise questions about the rigor of the analysis and give the impression that they were not actually determined as a result of analysis of the specifics of the site and the project, but rather reflected a generalized expectation for communities and projects of a certain size.

The staff expects more specific information about the match/mismatch between tax payments and infrastructure growth demands, and more specific information about how the project, potential impacts, and community response are viewed by local officials and residents.

Since there was no discussion of socioeconomic or EJ in association with the alternative sites, it is not known what information is available for inclusion in the ER.

Radiological Health

The staff expects more specific information on the exposure of Unit 2 construction workers to Unit 1 liquid effluent and the model used for the dose rate calculations in Section 4.5 of the draft ER. More specific information is also expected on the direct radiation and occupation radiation doses in Section 5.4 of the draft ER. Inconsistencies were identified, specifically the distance to the nearest garden. More specific information is expected on the choice of sampling sites, analyses, and frequency of analyses in Section 6.2 of the draft ER.

Waste Systems

The staff identified the following areas of concern:

- Basis for controls used to prevent potential gas, liquid, or solid radiological and non-radiological waste leaks to the environment
- Use of vague comments referring to quantities or decision making for a waste system such as “small amount” or “based on operating experience”
- Data for tables such as the chemical additives table (Table 3.6.1) does not appear to be current, and the tables may not be reflective of the actual chemical treatment
- When referencing documents such as the Final Safety Analysis Report in Sections 3.6.3, 3.6.3.1-3, the staff expects a demonstration of how these references support how the various waste systems designs mitigate environmental impacts
- Section 5.5.1 lacks references demonstrating the discharge impacts, including dredging, to the receiving waters and ecological resources

The staff expects that potential mixed waste issues will be addressed more clearly in Section 3.5.1, and that the radiological liquid, solid, and gas wastes discussion within Section 3.5.1 will describe how the systems will mitigate potential impacts to the environment.

The staff expects that Section 5.5.2 will present an actual waste minimization plan. Elements of the plan are discussed but no actual plan is presented.

Transportation

The applicant indicated that it intends to demonstrate that the environmental effects associated with the transportation of fuel and waste are small by meeting the conditions outlined in Table S-4 in 10 CFR 51.52. In the ER, the applicant made clear commitments to meeting most of the conditions in the table, but not all. The applicant indicated it will revise the ER to clearly commit to meeting all the conditions in Table S-4, especially clarification regarding onsite storage capacity and the number of identified fuel assemblies that can be stored specifically in relation to how many reactor cores that number of assemblies represents. The staff also expects clarification and documentation on how environmental effects from transportation were assessed for alternate sites in Section 9.3 of the ER.

Uranium Fuel Cycle

The applicant indicated that it intends to demonstrate that the environmental effects associated with the uranium fuel cycle are small by meeting the conditions outlined in Table S-3 in 10 CFR 51.51. In the ER, the applicant made clear commitments to meeting most of the conditions in the table, but not all. To support the use of Table S-3, the staff expects several areas in the ER to be revised to show a clear commitment to meeting all the conditions in the table. Specifically, the staff identified areas in Tables 5.7-2 and 5.7-3 that require correction (unit conversion in Table 5.7-2, rounding errors in Table 5.7-2, and textual changes related to Table 5.7-3 regarding buried solids).

The staff identified scaling issues related to the required dilution flow for several effluents (NH_3, NO_3, and fluoride). The staff expects clarification for doses to workers and public from uranium fuel cycle activities as well as the expected cancer risk from uranium fuel cycle activities versus the risk identified in Table S-3. The staff expects the technical rationale applicable to the Lee site to be followed by a conclusion stating the level of the environmental effect. It is also not clear to the staff how environmental effects from the uranium fuel cycle were assessed for alternate sites in Section 9.3 of the ER.

Conclusions

Based on its review of information during this visit, the staff believes that the main areas of difficulty the applicant is currently facing are: (1) the socioeconomic and environmental justice discussions for the Lee Site and the alternative sites lacked rigor and were missing important information which will be needed in the ER, (2) the proposed location for the discharge line outlet has the potential to impact a site proposed for national historic listing and this issue is not addressed in the draft ER, (3) a number of studies need to be completed and their findings need to be presented in the ER, and (4) the hydrology sections need to be edited, reported values need to be made consistent, and in some cases additional data and/or analysis need to be provided.

The current schedule for submittal of the application is December 2007. Based on this T-2 readiness assessment, the staff believes that the applicant is on target to meet the revised schedule and that there is a reasonable expectation that the identified issues and concerns can and will be appropriately addressed in the application. However, this was not a formal or comprehensive staff review and additional issues could be identified during the staff's formal review after the application is submitted.