October 9, 2007

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

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Environmental Projects Branch B
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H. Brent Clayton, Chief
Environmental Technical Support Branch
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FROM: Andrew J. Kugler, Senior Project Manager ***/RA/***
Environmental Projects Branch B
Division of Site and Environmental Reviews
Office of New Reactors

SUBJECT: TRIP REPORT - JULY 25 - 26, 2007, PRE-APPLICATION READINESS ASSESSMENT (T-2) FOR COMBINED LICENSE APPLICATION AT THE BELLEFONTE SITE

This report summarizes the staff's July 25 - 26, 2007, pre-application readiness assessment related to the environmental portion of a future combined license (COL) application for the Bellefonte site. The Tennessee Valley Authority (TVA) has indicated its intent to submit a Combined License (COL) application for this site late in 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 environmental report. In summary, the staff did not identify any issues related to the environmental report that would indicate it would not be ready by the planned date of application, although additional followup discussion with TVA regarding the site selection process is warranted. 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.

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The next pre-application activity for the site was a public information meeting. The meeting was held on September 11, 2007.

Project No.: 740

Enclosures:
As stated

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DATE	09/20/07	09/20/07	10/09/07

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Bellefonte Combined License
Pre-application Readiness Assessment on July 25 - 26, 2007

List of Attendees

NAME	AFFILIATION
Andrew Kugler	U.S. Nuclear Regulatory Commission (NRC)
Michael Willingham	NRC
William Burton	NRC
Harriet Nash	NRC
Michael Masnik	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
Jim Chardos	Tennessee Valley Authority (TVA)
Bruce Yeager	TVA
John “Bo” Baxter	TVA
Tina Broyles	TVA
Wayne Hilson	TVA
Chris Ungate	TVA
Deb Luchsinger	Enercon
Gabe Salamon	Enercon
Randall Lantz	Enercon

Bellefonte Combined License
Pre-application Readiness Assessment on July 25 - 26, 2007

List of Attendees

NAME	AFFILIATION
Marvin Morris	Enercon
Paul Loza	Enercon
Paul Hansen	Enercon
Brynn Fredette	Enercon
Dave Studly	Enercon
Eric Barndt	Enercon
Fred Redwanz	Enercon
Rachel Tuerner-Work	Enercon
Melinda Harris	Enercon
Richard Grumbir	NuStart
Neil Haggerty	NuStart

Bellefonte Environmental Report
Readiness Assessment Visit #2
Agenda

July 25, 2007

7:45 Coffee and Sign In at Enercon Offices – Kennesaw, Georgia

8:00 Welcome and Introductions

8:15 Brief Overview of Bellefonte Project

8:30 Breakout to Technical Groups/Start Environmental Report 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 26, 2007

7:45 Coffee and Sign-In at 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

12:00 Lunch

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

2:00 Need for Power Discussion

4:45 End of Day Summary

Enclosure 2

Additional Information Summarizing the
Bellefonte Nuclear Regulatory Commission Environmental Staff Readiness Assessment
Location: Enercon Offices, Kennesaw, Georgia
July 25 - 26, 2007

The 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, the staff did identify concerns related to the applicant's site selection process that warrant followup between now and the date of application. These concerns, and other application-specific issues the staff expects the applicant to address, are discussed below.

Permits, Licenses, and the 401 Certification

There is a generic issue related to the timing of licenses and permits in relationship to the review. In most cases the licenses or permits will not be granted (or even applied for) until shortly before operation of the facility (or shortly before the anticipated start of the activity, such as a construction activity). These permits or licenses will most likely not be available at the time of the U. S. Nuclear Regulatory Commission (NRC) staff's review. One example is the Clean Water Act Section 401 certification for water quality. This certification would be requested by the applicant, and is required before the NRC takes its action (issuing the combined license). The staff expects the applicant to begin a dialogue with the permitting authority to determine how this issue can be addressed.

Site Selection Process

The staff identified five significant concerns with the site selection portion of the ER. First, the process the applicant used to narrow the field from more than two hundred potential sites to four candidate sites is not documented in the ER. Second, a significant amount of the data and information referenced in the ER for the selection of the alternative sites and the comparison to the proposed site is from studies performed in the 1970s. No discussion is provided to justify the use of this dated information for the current review. Third, although Tennessee Valley Authority (TVA) had received construction permits for the three alternative sites from the Atomic Energy Commission/NRC, it has since sold all of the land for two of the sites, and portions of the third, to other entities. The ER does not provide a clear basis that these sites could be reacquired for the purpose of building new nuclear plants. Fourth, there is no clear basis provided in the ER for the exclusion of potential greenfield sites, and a clear description of the alternative sites is not provided in the ER. Finally, the ER does not discuss some of the environmental impacts of building and operating new plants at these sites (e.g., impacts to cultural resources).

Need for Power

The latest Integrated Resource Plan (IRP) is the 1995 plan. The applicant indicates they believe the plan is still valid. The plan, which is public, will provide much of the information related to the need for power that is not in the environmental report (ER). The staff will have to consider whether there are any issues with the age of the IRP. There are no independent assessments of the need for power in the TVA service area. Information available from U.S. Department of Energy, Southeastern Electric Reliability Council, and National Electric Reliability

Council would be based on information provided by TVA. TVA doesn't have historical information on reserve margins, but TVA indicated that it will look to see if the information can be developed readily and included in the ER.

Alternatives

Concerns relating to section 9.3, Alternative Sites, were provided above.

Regarding section 9.4, Alternative Systems, it appears a lot of the data and information used to develop and compare system alternatives come from the 1970 ERs, and final environmental statements. No basis for the use of this dated information is provided, even though more recent information likely exists.

The discussion related to the discharge design provided information on the advantages of the existing discharge, but it did not provide much information on the alternative designs for comparison. A similar situation exists for alternatives to the water treatment system. Also, relative cost information is not provided for the discharge and water treatment system alternatives.

Cost/Benefit Comparison

None of the benefits are quantified in section 10.4. The staff expects TVA estimates for some of the benefits (e.g., taxes paid, wages paid). The staff expects TVA will address the fossil fuel impacts of the fuel cycle when it discusses the emissions avoidance in the benefits section and the emissions in the cost section. The draft ER did not include consideration of the alternative sites in Tables 10.4-1 and 10.4-3, and the reasoning behind the exclusion isn't clear. The staff expects TVA will either provide an explanation for the exclusion, or include the alternative sites.

Hydrology

There is a large amount of hydrology data available for the site. However, the ER includes only a limited amount of the data, and provides little interpretation of the data and, in several cases, limited justification for the conclusions and assumptions, particularly with respect to the groundwater analysis.

There is a current National Pollutant Discharge Elimination System permit for the blowdown discharge. The staff expects the final ER to include anticipated effluent concentrations with operation of units three and four.

Thermal modeling of the discharge is unclear. The staff expects it to be clarified and better explained including a description or drawing of the discharge pipe and it's relation to the river bottom.

Aquatic Ecology

Section 2.4.2 lacks information on monitoring to support the statements and conclusions in Sections 5.3 and 6.5. Also, lacking is information to support conclusions on construction and operation impacts and on aquatic species and their habitats in transmission corridors. The staff

expects the ER to use existing information and surrogate information from sites in the vicinity (especially Widows Creek steam generating plant).

If the applicant chooses to use existing monitoring programs elsewhere in the vicinity of the site, the staff expects it to explain why this approach is acceptable and appropriate for evaluating impacts associated with the intake and discharge structures.

For construction and operation discussions, the staff expects the ER to provide examples of best management practices, stormwater management plans and spill prevention plans that can be evaluated and provided in support on conclusions. The staff also expects it to provide specific assessment results or use existing data to support conclusions on impingement and entrainment, as well as for chemical effluents.

Terrestrial Ecology

The staff expects the ER to provide information on wildlife and their habitats in transmission corridors in order to support conclusions.

For construction and operation discussions, the staff expects the ER to provide examples of best management practices, stormwater management plans and spill prevention plans that can be evaluated and provided in support of conclusions.

Cultural and Historic Resources

The staff expects the ER to provide a basis if the applicant determines that upgrades and maintenance of the existing lines are not expected to cause additional impacts to cultural resources.

Socioeconomics and Environmental Justice

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

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.

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

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

It appears, the projected construction workforce was recently increased by almost one thousand workers in some ER sections. This change would require re-forecasting and interpreting many of the impacts.

Land Use and Transmission Lines

The staff expects the assessment framework and methodology to be made more clear and rigorous. For example, the staff expects a clearer discussion of the future of the site and land use without the project to be provided.

The staff expects the ER to evaluate off-site impacts on land use as a consequence of growth; these indirect impacts are not fully addressed, especially given the large expected workforce and the absence of zoning or land use controls outside the municipalities.

The staff also expects the final ER to more clearly describe wetland impacts, and to discuss land use and transmission lines in the alternatives chapter.

Radiological Health

For radiological health, many of the impacts sections lacked concluding statements on whether the impacts were Small, Moderate, or Large. Occupational radiological doses were not provided, and the source/reason for the different natural radiation dose (140 mrem./yr vs 360 mrem/yr) and biannual land use census was lacking. There were inconsistencies for model input values versus values stated earlier in the ER, and no justification why only one sediment sample was used, and why that sample was chosen. The staff expects these concerns to be addressed in the ER.

Transportation

The applicant indicated that it intends to demonstrate that the environmental effects associated with the transportation of fuel and waste is 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 of 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. The staff identified scaling issues related to the required dilution flow for several effluents (NH_3, NO_3, and Fluoride). The staff also expects clarification for doses to workers and public from Uranium Fuel Cycle Activities (UFCA) as well as from transportation activities, as

well as to the expected cancer risk from UFCA versus the risk identified in Table S-3. The staff expects the technical rationale applicable to the Bellefonte site to be followed by a conclusion stating the level of the environmental effect. The staff also expects the applicant to resolve a discrepancy regarding the values of the chemical effluents in section 5.7.4 from uranium fuel cycle. It is also unclear to the staff how environmental effects from the uranium fuel cycle were assessed for alternate sites in Section 9.3 of the 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 FSAR 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 would be addressed more clearly in section 3.5.1, and that the radiological liquid, solid and gas waste discussion within section 3.5.1 would 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.