

July 8, 2008

MEMORANDUM TO: Richard P. Raione, Chief
Environmental Projects Branch 2
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 – MAY 8 - 9, 2008, READINESS ASSESSMENT (C-3)
VISIT FOR A COMBINED LICENSE APPLICATION AT THE LEVY
COUNTY SITE

This report summarizes the staff's May 8 - 9, 2008, pre-application/readiness assessment (C-3) visit related to the environmental portion of a future combined license (COL) application for the Levy County, Florida site. Progress Energy of Florida (PEF) has indicated its intent to submit a COL application, including a request for a limited work authorization, for this site. PEF selected the Westinghouse Corporation's advanced pressurized water reactor, or AP-1000, design for the proposed new nuclear units.

The purpose of this visit was to assess the applicant's readiness and its progress toward submitting a COL application by reviewing PEF's draft environmental report (ER). The visit took place at the PEF offices 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 discussed. Note that this assessment was conducted a few months prior to the applicant's planned COL application date and the staff did not expect the ER to be fully developed at this stage. Furthermore, the applicant was aware of, and informed the U.S. Nuclear Regulatory Commission (NRC) staff of many of the issues described in Enclosure 3. 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.

The staff held a public outreach meeting near the site on June 5, 2008.

Project No.: 756

Enclosures: As stated

CONTACT: Andrew Kugler, NRO/DSER/RAP2
301-415-2828

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DATE	06/11/08	06/09/08	07/8/08

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List of Attendees – Levy County C-3 Readiness Assessment Visit
 Location: Progress Energy Offices, Raleigh, North Carolina
 May 8 - 9, 2008

Name	Affiliation
Andy Kugler	U.S. Nuclear Regulatory Commission (NRC)
Barry Zalcman	NRC
Mike Masnik	NRC
Doug Bruner	NRC
Jessie Muir	NRC
Michael Smith	Pacific Northwest National Laboratory (PNNL)
Ann Miracle	PNNL
Kristi Branch	PNNL
Rajiv Prasad	PNNL
Dave Bruzek	Progress Energy
Eric Horner	Progress Energy
Jamie Hunter	Progress Energy
Bob Kitchen	Progress Energy
Jan Kozyra	Progress Energy
Joe Pavletich	Progress Energy
Paul Snead	Progress Energy
Ray Bogardus	CH2M Hill
Bryan Burkingstock	CH2M Hill
Heather Dyke	CH2M Hill
Scott Freeman	CH2M Hill
George Howroyd	CH2M Hill
Sara Orton	CH2M Hill
Wayne Schofield	CH2M Hill
Charles Uhlarik	CH2M Hill
Lorin Young	CH2M Hill
Rick Zeroka	CH2M Hill

Levy County C-3 Environmental Review Meeting Agenda
May 8 - 9, 2008

Thursday, May 8, 2008

0730 Sign In and Coffee, Refreshments

0800 Introductions

- Welcome and Introductions
- Opening Remarks from Progress Energy and NRC
- Brief Overview of Levy COL Application Environmental Report

0830 ER Review (NRC)

1200 Lunch

1300 Continue ER Review (NRC) & Meeting with Applicant's Technical Staff

1645 End of Day Summary / Debrief

1700 Adjourn

Friday, May 9, 2008

0730 Sign In and Coffee, Refreshments

0800 ER Review (NRC) & Meeting with Applicant's Technical Staff

1130 Lunch

1230 Continue ER Review (NRC) & Meeting with Applicant's Technical Staff

1330 Exit / Debrief

1400 Adjourn

Additional Information Summarizing the Levy County Site
Readiness Assessment Visit (C-3)
Location: Progress Energy Offices, Raleigh, North Carolina
May 8 - 9, 2008

Overall, Progress Energy Florida (PEF) appears to be on track for gathering most or all of the needed data that will allow it to submit an adequate environmental report (ER). During the review some issues were identified that warrant attention by PEF. The following sections describe the results of the visit.

General

General observations regarding the use of analytical tools and reference citations: (1) the U.S. Nuclear Regulatory Commission (NRC) staff will expect to have access to the code input files and list of assumptions to assist in its independent evaluation, (2) analytical tools have pedigrees and verification and validation (V&V) based on versions, the actual reference citations are expected, and (3) non-proprietary, publicly available references should be provided with the application, rather than being recreated during the review. In addition, the ER makes numerous references to NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, without explicit support for applicability to advanced reactor types (e.g., AP-1000) or to this location.

Site Selection Process

There were no significant issues identified related to the site selection process. One minor issue was identified in the subsection for each site that addresses transmission lines (e.g., Section 9.3.3.1.10). The text in these sections focuses on the impacts to ecology. However, in Chapter 4 of the ER the focus for the transmission lines is on the impacts to land use, and no mention is made of the impacts to ecology. The approach for the proposed and alternative sites should be consistent. In addition, Section 9.3.3.4.3 indicates that the impacts to water would be large because of the need for a reservoir. The basis for this conclusion is not clear.

Alternatives (Other Than Site Selection)

The staff reviewed the ER for energy alternatives and system design alternatives.

Regarding the energy alternatives, there were a number of impacts provided in the ER that do not appear to use the definitions of SMALL, MODERATE, and LARGE consistently. For example, the air impacts for a coal plant are given as MODERATE to LARGE. But LARGE means that the impacts destabilize the resource; however, the NRC staff believes that emissions controls would prevent this. In another case, the water impacts for coal and gas plants are listed as higher than those for the proposed nuclear plant. But the impacts on water for a coal plant should not be significantly greater than for a nuclear plant, and the impacts of a gas plant are expected to be somewhat less. Other areas in which inconsistencies were noted include ecology, aesthetics, land use, socioeconomics, and human health. In addition, it is not clear how the "Overall Impact" was developed.

Other issues related to alternative energy sources include: (1) a lack of supporting basis for the determination that imported power is not a viable option, (2) the lack of information on the potential for expansion of conservation as an option, and (3) the lack of cost estimates for the feasible alternative energy sources, including decommissioning costs.

Need for Power

The staff reviewed Chapter 8 of the draft ER regarding the need for power.

PEF filed a "Petition for Determination of Need" with the State of Florida on March 11, 2008. The State is expected to issue a final decision on the petition by the end of July. The State process may satisfy the staff's guidance for an independent assessment of the need for power (see the Environmental Standard Review Plan, or ESRP, Section 8.2.1). PEF attempted to address the four ESRP criteria for an adequate independent evaluation of the need for power in Sections 8.1.1 through 8.1.4 of the draft ER. But the discussions need to be supplemented to adequately address these criteria.

Some other issues that were identified include: (1) the lack of information on the potential for expansion of conservation or demand-side management, (2) a lack of clarity on whether there is a requirement for reserve margin with which PEF must comply, (3) limited information on transmission interties with other areas and the available capacity of such lines, and (4) the lack of any comparison of PEF's projection of demand versus any independent projection. Finally, the chapter doesn't provide much information on the methodologies and data sources used for the need for power analysis. However, much, if not all, of the needed information is likely to reside in PEF's Ten Year Siting Plan, the Petition for Determination of Need, and the State's order in response to the petition.

Cost-Benefit Analysis

The staff reviewed the cost-benefit discussion in the ER.

Sections 10.4.1.4.2 and 10.4.2.2 provide information on the cost of building the two units. However, the total for the cost is inconsistent with the breakdown between the two units and transmission lines. In addition, the total estimate appears to be in conflict with the results of various studies that are quoted in the ER, and no explanation is provided for the difference. In a similar vein, the cost of building the transmissions lines that is provided in Chapter 10 is about a factor of four greater than that discussed in Chapter 9 and this difference (and its potential influence on the site selection discussion) is not explained.

Section 10.4.2.3 provides several numbers related to potential costs of operation. But it never provides a conclusion regarding the cost PEF expects to represent its project. And, as has been discussed with other applicants, to the extent practical the benefits and costs, even external costs, should be put into monetary terms. The costs should be put into some common form (e.g., present cost) or an explanation given of the type of cost being provided (e.g., whether interest charges are included). See ESRP Section 10.4.2.

Cultural Resources

The work on the cultural resources sections appears to be thorough and complete, with site characterization and discussion of plans associated with land disturbing activities within the area

of potential effect. One issue, affecting numerous sections, was identified. This issue involves formalizing corporate procedures with the State Historic Preservation Officer regarding the cessation of activities if there are unanticipated finds.

Meteorology, Radiological Impacts, and Accidents

The staff reviewed portions of the draft ER related to meteorology, air quality, and accidents.

A limited on-site meteorological data set (February 2007 - January 2008) was used as the best source of data; it was the only source of data, but it should be qualified. For example, a comparative assessment could be made to determine the first-order National Weather Service station that would be most representative of the site for the long-term, climatic conditions. In addition, some judgment should be made as to whether the one year when data was collected, was, in fact, a representative year (this goes beyond just a comparison with extremes, for example, temperature).

Regarding the use of alternative analytical tools, e.g., CALPUFF and AERMOD, these should be discussed in terms of providing an adequate basis for assessment rather than merely more current tools than the cited references in regulatory guidance. Minor issues involve: (1) differentiating between requirements and guidance, (2) safety analytical approaches (i.e., conservative) v. environmental analytical approaches (i.e., nominal), and (3) shortfall in level of detail available for analyses (as examples, performance curves for equipment yet to be selected and best management practices for fugitive emissions).

Staff noted that the draft ER did not provide: any description of monitoring for unanticipated liquid radioactive releases, primarily tritium, as described in "Liquid Radioactive Release Lessons Learned Task Force Final Report" (September 2006); any description of operational monitoring programs following Nuclear Energy Institute templates; any information to support compliance with 10 CFR Part 1406; and associated cost-benefit analysis. In addition, the staff noted that there were numerous parameter values listed in the tables of Chapter 5 without a cited source or explanation of how they were derived.

The descriptions of radiological waste systems reference the AP-1000 Design Control Document, Revision 16. Staff expects this description be supplemented to include site-specific information for mobile systems for processing/packaging liquid radioactive wastes, including any vendor systems to be used such as ion exchange through resin columns, resin dewatering, and solidification. The staff also believes that the ER would benefit from discussion of corporate planning for low level waste disposal, especially because the Barnwell facility is closing this summer to non-compact waste.

In the draft ER discussions of radiological impacts to important species (other than humans), PEF uses surrogate species to represent the important species. However, the ER does not explain why the use of these surrogate species is appropriate. In addition, the ER provides the doses for surrogate species and important species, but does not provide a description of how the doses were converted from LADTAP/GASPAR code outputs to the doses for the important species.

PEF states in the draft ER that the Radiological Safety Program and associated procedures will ensure compliance with applicable regulations. The staff understands that these programs are yet to be developed; however, staff suggested that additional information could be provided

about what is known now (e.g., how these programs might be integrated with or modeled after the existing Crystal River Energy Complex (CREC) Unit 3 programs).

There were no significant issues related to accidents. Minor issues involve: (1) the level of detail available for SAMA analyses - PEF could better reflect that it plans to consider severe accidents in its training program and operating procedures rather than an approach that defers the discussion until the program and procedures are developed (which would be after the NRC action), (2) the clarification of terms that are used (for example, "release of radioactivity") and citations (for example, INEEL report) and use of terms of art (for example, external event risk v. seismic risk), (3) addressing safety acceptance criteria (such as the design certification document) instead of focusing on environmental analyses, and (4) justification of the applicability of other NRC documents referenced (for example, NUREG-1437).

Hydrology

PEF is conducting ongoing investigations and modeling that staff expects to be reported in the ER. These include characterization of anticipated changes in groundwater levels during operation using the Southwest Florida Water Management District (SWFWMD) groundwater model and placement of raw water wells.

The draft ER provides a reasonable qualitative description related to hydrology; however, in several places limited detail or quantitative information is available. Staff expects that more detail or quantitative information will be included for: present and potential future groundwater withdrawals from local aquifers; sustainability of the groundwater system and potential impact of groundwater withdrawal for plant operations on other current and future users; identification of any sole source aquifers; location of blowdown discharge into CREC discharge canal; present types and quantities of chemical constituents in the CREC discharge canal; discharges for sanitary wastes and dewatering activities; disposal of wastes generated during construction; use of stormwater runoff to supplement makeup water to the cooling towers (e.g., quantity, quality, and frequency); freshwater spring and dam discharge rates to the Cross Florida Barge Canal (CFBC); current water temperature data from the CREC discharge canal; salinity values for the upper reaches of the CFBC; and the difference between Rainbow Springs and Rainbow River.

Staff also expects that more detail will be provided regarding permitting and regulatory timelines and processes. For example, staff expects that the ER will: summarize information regarding any statutory use restrictions on surface water bodies or aquifers for plant operations; describe Florida Department of Environmental Protection (FDEP) requirements for waste minimization and pollution prevention plan; describe any relationship between the existing CREC industrial wastewater facility permit and permitting for the proposed facility; clarify National Pollutant Discharge Elimination System (NPDES) permitting for the new units (i.e., whether the two units would be permitted separately and share the same blowdown discharge); clarify whether the groundwater-related permits will be part of the Florida Site Certification Application (SCA) process and whether those permits would be based on the SWFWMD groundwater model; and expand the description of the SCA process, including timelines for any permits to be issued.

Aquatic Ecology

PEF appears to have an adequate sampling program in place to properly characterize onsite aquatic resources. However, the sampling data provided to date in the draft ER is likely not sufficient to provide a complete assessment of the species/habitat composition of the CFBC or

the discharge area. PEF indicated that data collection and analysis will continue and that additional data would be provided as a supplement to the ER, following the anticipated submittal of the COL application in July 2008.

No relevant data for impingement and entrainment of aquatic species were made available. PEF assumed that the impacts would be minimal based on data provided for current CFBC conditions. However, the fauna will likely increase with unidirectional flow in from the Gulf of Mexico to the area of the intake, and the current assumptions may not be valid for operations. Data from CREC could possibly be used as an extreme example. Another possible approach would be to model how the change in the salt wedge at the area of the intake may allow for species diversity/abundance, using one of the downstream locations in the CFBC as a proxy for what conditions will likely be at the intake during operations. In addition, the draft ER did not describe the impacts from CREC discharge for comparative purposes for assessing the condition of the discharge area. The staff expects the ER to address these issues.

Terrestrial Ecology

The staff expects the following issues related to terrestrial ecology to be addressed in the ER: potential terrestrial impacts from placement of the buried discharge piping; the locations of transmission line corridors (which have not been finalized by Progress); and the potential terrestrial impacts in the transmission line corridors.

Socioeconomics and Environmental Justice

The socioeconomics sections of the draft ER appeared to be well done. The staff expects PEF to consider the following areas for improvement: clarify rationale and description of the methodology for population projections and distribution of in-migrants; provide information for the proximate communities (i.e., incorporated areas) in each section of the discussion that includes services; correct the calculation of employment impacts to reflect all jobs/workers at the plant; draw upon experience from the CREC (where appropriate); reflect temporal sequencing of population and employment transitions (i.e., the pattern of change over time); provide additional description of expected changing or static character of the area without the project (i.e., qualitative description of "baseline" socioeconomic conditions over the projected time period); clarify that there will be a decommissioning phase for the project that will involve workers and investment; provide facilities and services characteristics and response plans for proximate communities; and provide expectations concerning distribution of benefits from the project among proximate jurisdictions.

The environmental justice sections of the draft ER also appeared to be well done. The staff expects PEF to consider the following areas for improvement: provide references for transportation and noise studies cited in the document and document that EJ analysis was applied to subsistence populations and to transportation, transmission and water corridors.

Land Use, Transmission Lines, and Non-Radiological Waste

The staff reviewed portions of the draft ER related to land use, transmission lines, and non-radiological waste. While these sections were generally in good condition, some areas for improvement were noted.

On the subject of land use, the staff expects more information to be provided regarding the new Kings Road Mine, near the proposed site. The information may affect other sections as well (e.g., cumulative impacts). The staff also expects the ER to provide additional information regarding the zoning change for the Levy site, including a description of the land area affected by the change. In addition, the staff would expect to see an explanation of the phrase "lands managed for environmental considerations." Finally, the staff expects the ER to provide information on railroad spur location, construction, and associated impacts, and on the disposal of dredge spoils from the construction of the barge slip.

While the transmission lines are not part of the NRC action, a description of the lines and associated impacts is provided for the cumulative impacts analysis. The draft ER discusses noise impacts in relation to county limits, but the limits, or a specific reference to the source of the limits is not provided. In addition, the transmission lines are expected to cross the Withlacoochee River, which is classified as an Outstanding Florida River. However, the draft ER does not provide information on any special requirements related to this river crossing in either Chapter 1 or 2.

Regarding non-radiological waste, the staff expects the ER to provide information about the capacities of the nearest landfills for solid waste and for construction and debris waste (it appears that two different landfills would be involved). If there are any corporate procedures regarding disposal of non-radiological wastes, these ought to be referenced. Finally, the staff expects the ER to provide a clear and consistent description of the plant discharge (the line being run down to the CREC site).

Summary

Based on its review of the draft ER and supporting information during the May 8 and 9, 2008, visit, the staffs' main area of concern is the timeliness of the completion and presentation of results from the ongoing aquatic sampling program. As indicated above, PEF appears to have an adequate sampling program in place to properly characterize onsite aquatic resources; however, resultant data are to be provided as a supplement to the ER following the anticipated submittal of the COL application in July 2008. The remaining issues described above likely can be resolved during the application review process.

Overall, PEF appears to be on track for gathering the data that will allow it to submit an adequate environmental report by the summer of 2008. However, some concerns were noted in each area, as discussed above.