

September 23, 2008

MEMORANDUM TO: William F. Burton, Chief
Environmental Projects Branch 1
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 - JULY 29 - 30, 2008, READINESS ASSESSMENT
(C-3) VISIT FOR A FUTURE COMBINED LICENSE APPLICATION
AT BELL BEND NUCLEAR POWER PLANT SITE

This report summarizes the U.S. Nuclear Regulatory Commission (NRC) staff's July 29 to 30, 2008, pre-application/readiness assessment (C-3) visit related to the environmental portion of a future Combined License Application (COL) for the Bell Bend Nuclear Power Plant site near Berwick, Pennsylvania. PPL Nuclear Development (PPL) has indicated its intent to submit a COL application on October 14, 2008, for the Bell Bend Nuclear Power Plant site. PPL has selected the Evolutionary Power Reactor (EPR) design for one proposed new nuclear unit to be located adjacent to the Susquehanna Steam Electric Station. PPL does not plan to request a limited work authorization.

The purpose of this visit was to assess the prospective applicant's readiness and its progress toward submitting a COL application by reviewing PPL's draft Environmental Report (ER). The visit took place at the PPL offices in Salem Township, Pennsylvania. Enclosure 1 provides a list of attendees. Enclosure 2 is the agenda used during the visit, and Enclosure 3 is a summary of the key issues the staff identified. This readiness assessment was conducted approximately 75 days 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 NRC staff of many issues described in Enclosure 3.

Overall, PPL has gathered most of the data that will allow it to submit an adequate ER. However, at the time of this readiness assessment visit, significant amounts of the available data had not been included in the draft ER to support the bases and conclusions regarding environmental impacts. Missing information and incomplete analysis were noted throughout the review of the draft ER. Because of this, significant effort by PPL will be required to provide a complete, high quality ER by the planned October 2008 submittal date.

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However, PPL stated its determination to allocate the resources necessary to make the submittal by October 2008. Readiness assessment activities are not as comprehensive as a formal acceptance review; therefore, additional issues could be identified after the application is received.

The NRC held a public outreach meeting on Tuesday, August 19, 2008, at the Bloomsburg University Kehr Union Ballroom in Bloomsburg, Pennsylvania.

Project No. 762

Enclosures:
As stated.

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Attendees – Bell Bend C-3 Readiness Assessment Visit

Location: PPL Nuclear Development Offices, Berwick, Pennsylvania
July 29 - 30, 2008

Name	Organization
Irene Yu	NRC
John Fringer	NRC
Paul Kallan	NRC
Ken See	NRC
Michael Willingham	NRC
Kristi Branch	PNNL
Mike Fayer	PNNL
Roy Kropp	PNNL
Beverly Miller	PNNL
Paul Jacobson	Alion
Robert Meckler	Alion
Peter Gluckler	Areva
Barbara Hubbard	Areva
Theodore Messier	Areva
Lannis Areva	Areva
Cheryl Baker	CH2M Hill
Charles Uhlarik	CH2M Hill
Greg Poremba	ERM
Ben Resnick	GAI
Lindsay Stutzman	Kleinfelder
Charles Thompson	Kleinfelder
Mark Gutshall	Land Studies
Bill Burch	Mactec
Pat Garrow	Mactec
Paul Harmon	Normandeau
Warren High	Mactec
Robert Barkanic	PPL
Mike Detamore	PPL
Fred Eisenhuth	PPL
Jerome Fields	PPL
Terry Harpster	PPL
George Kuczynski	PPL
Jan Phillips	PPL
Karen Scopelliti	PPL
Rocky Sgarro	PPL
Fehmida Mesania	Rizzo
Jeff Schubert	Rizzo
Robert Hameetman	Sargent & Lundy
Maury Pressburger	Sargent & Lundy

Attendees – Bell Bend C-3 Readiness Assessment Visit

Location: PPL Nuclear Development Offices, Berwick, Pennsylvania
July 29 - 30, 2008

Steve Taylor	Sargent & Lundy
Michael Cain	UniStar
Christian Clement	UniStar
Lisa Dashnau	UniStar
Katie Fitzpatrick	UniStar
Shawn Hughes	UniStar
Joseph Mihalcik	UniStar
Joe Savage	UniStar
Heather Scholtes	UniStar
Terry Solazzo	UniStar
Gerry van Noordennen	UniStar
Peter Vlad	UniStar

Bell Bend C-3 Readiness Assessment Agenda

Location: PPL Nuclear Development Offices, Berwick, Pennsylvania
July 29 - 30, 2008

Tuesday, July 29, 2008

- 0800 Welcome and introductions
- 0815 Brief overview of Bell Bend project
- 0830 Brief tour of site (optional), breakout to technical groups/start ER review (NRC)
- 1200 Lunch
- 1300 Breakout to technical groups – continue ER review (NRC),
NRC begin meeting with corresponding applicant experts
- 1645 End of day summary

Wednesday, July 30, 2008

- 0800 Status summary
- 0815 Breakout to technical groups - continue ER review (NRC),
NRC teams meet with corresponding applicant experts
- 1200 Lunch
- 1300 Breakout to technical groups - continue ER review (NRC),
NRC teams meet with corresponding applicant experts
- 1645 End of day summary
- 1715 Adjourn

Summary of Issues Identified During
the U.S. Nuclear Regulatory Commission's
Bell Bend C-3 Readiness Assessment Visit

Location: PPL Nuclear Development Offices, Berwick, Pennsylvania
July 29 - 30, 2008

PPL Nuclear Development (PPL) provided an overview presentation of the proposal for one reactor at the Bell Bend Nuclear Power Plant site and environmental aspects of the combined license (COL) application in progress. The breakout sessions that followed allowed the assessment team to review the current draft Environmental Report (ER) to determine how close it is to being ready for submittal. The U.S. Nuclear Regulatory Commission (NRC), and the Pacific Northwest National Laboratory (PNNL) staff reviewed as much of the ER as possible during the allotted time. Issues and concerns identified during this review are presented in the following discussions.

Alternative Energy Sources

In the energy alternatives section of the ER, the staff expects an objective, balanced hand when describing and assessing alternative energies. The staff also expects information beyond that provided in the draft ER for some of the alternatives (e.g., solar, coal, and natural gas), with references and basis for the conclusions and impacts. To the extent possible, cost and market-readiness information should be based on referenced sources and presented in units that allow comparison across alternatives.

Alternative Sites Analysis

The alternatives sites section of the draft ER had a considerable amount of "generic" information for each of the proposed alternative sites. The staff expects the bases for the conclusions concerning level of impact to be clear and consistent. Maps or other graphic representation of the alternative candidate sites at a finer level of resolution would assist in the NRC's review of the ER. More information regarding the choice and implications of Calvert Cliffs Unit 4 as an alternative site is expected in the ER to provide a basis for understanding how the proposed alternative would relate to other proposed actions at that site (and therefore the impacts that would result). The draft ER provided a generic analysis of greenfield sites and determined that none would be environmentally preferable to the proposed site. The staff expects the ER to provide additional information to support this generic analysis.

Aquatic Ecology

The staff found that the aquatic ecology sections of the draft ER were relatively mature; however, several areas requiring additional detail were noted. The surface water section of the draft ER did not contain a description of any of the five or six ponds found onsite. This section also did not describe the North Branch Canal. Sampling has continued through the summer of 2008. The staff expects these data to be included in the ER, especially for those locations for which these are the only recent data available. These include Walker Run (onsite and offsite), the tributaries that will be affected, the onsite ponds, and the North Branch Canal. The applicant began collecting entrainment and impingement data in April 2008 and plans to

continue sampling through April 2009. The staff expects the ER to contain as much of the data as are available at the time it is prepared with the remaining data submitted as soon as available. Discussions of important species were primarily limited to threatened and endangered species. The staff discussed with the applicant the need to include ecologically important and indicator species. The descriptions of the intake and discharge structures were not clear, which makes it difficult to adequately consider potential impacts. These descriptions should include specific design components (e.g., height of diffuser above the river bottom), and installation methods (e.g., area encompassed by coffer dam; duration in place). The staff expects the ER to contain the data from 2007/2008 field surveys. The need for additional bases for statements made in the ER was discussed with the applicant. No details were provided regarding the relocation of the main stem and east fork of Walker Run. The staff expects specific information about the construction process and stream reconstruction efforts to be provided in the ER so that the potential impacts, especially to downstream areas, can be evaluated. Such information would include the recolonization process and timeline and monitoring of recovery in this system. PPL indicated that the discharge plume modeling was done using incorrect parameters for the new discharge pipe (the parameters for the existing discharge for Susquehanna Steam Electric Station Units 1 and 2 were used). The staff expects the modeling to be redone and the results incorporated into the ecology sections of the ER. The alternative site aquatic ecological comparisons and cumulative impacts in the draft ER lacked detail. The staff expects that the ER will provide information to address these concerns.

Terrestrial Ecology

Several areas of concern related to terrestrial ecology were noted in addition to a few open items and missing details. The staff expects the percentage of habitat coverage and total size to be incorporated along with results of data collection during surveys for important species. Additional detail is necessary to explain why some migratory species will not be affected. More information is necessary to further characterize wetlands and mitigation measures. Further explanation of pre-application, site preparation and construction, pre-operational, and operational monitoring methods and procedures is warranted. The description should be detailed enough to support the characterization of the site. Attention should be given to the duration and location of the monitoring program as well as providing provisions for updating the program. Additional information will be expected to support the ER conclusion that local impacts will not significantly affect the region and the availability of suitable habitat for important species. In addition, noise impacts to the terrestrial environment were not included in the draft ER. There were a few discrepancies in the description of operational impacts to the terrestrial environment. More detail will be necessary to support impacts of salt deposition, fogging, and icing. The alternative site analysis focused on construction impacts to terrestrial species but lacked information on operational impacts. The staff expects that the ER will provide information to address these concerns.

Hydrology

The staff found that most of the information needed for the hydrology review is available in the draft ER and in the contractor reports that are expected to be folded into the final ER. Significant work remains to be done to resolve numerous open items in the ER. The applicant plans to get all of its cooling water from the Susquehanna River for the Bell Bend site. The applicant noted that significant quantities of water may be generated by the dewatering activity, yet no plan is evident for water disposal, especially given that a portion of the water may be routed into Walker Run waterway. Many monitoring wells will be lost during excavation, leaving

few intact wells to document the impact of dewatering or the eventual groundwater behavior once construction is completed. No plan is evident for dealing with the loss of monitoring wells. The staff noted that a single conceptual groundwater model is provided, but no alternative models are discussed. Also, the staff was told that the applicant has engaged in discussions with other agencies regarding permits affecting hydrology (e.g., water consumption; storm water control), but no documentation was available on the status of those discussions.

Land Use and Transmission Lines

Several areas of concern were noted for the land use section. At the time of the readiness assessment, the land use analysis appeared to be on hold, pending decisions concerning site design and engineering. Consequently, no specific information was available concerning the location, amount of disturbed land, or impacts of the heavy haul road, the railroad extension, the transmission tower locations, or the specifics of the land excavation and location of spoils from cooling tower siting. Specifics concerning these items, the relocation of the Walker Run waterway, pertinent land use plans and restrictions, and purchased or annexed properties and their disposition are expected in the ER so that the analysis of how the proposed project would affect wetlands on the site, or other resources (farmland) can be addressed. The draft ER lacked references for special land use categories or tribal lands. More details will be required on the locations of parks and privately held trusts. The staff expects this additional information and supporting references to characterize land use in the area to be included in the ER.

Cultural Resources

At the time of the staff's visit, PPL had not finalized the site design and engineering and were in the process of purchasing or annexing properties. Specifics concerning how these changes affect the area of potential effect, the necessity for additional surveys, and concurrence with the State Historic Preservation Officer are expected in the ER. In addition, the draft ER was unclear on the procedures for inadvertent discovery of cultural resources during construction, how the Native American Tribes were identified, and the constructional impacts due to transmission line upgrades and new access corridors, if any.

Socioeconomics and Environmental Justice (EJ)

The socioeconomic and environmental justice portions of the draft ER were well framed and the general approach is solid, but some important information is still missing. Given the rural nature of the site and the absence of a dominant community into which new workers would locate, an analysis is warranted to identify the communities proximate to the site that are most likely to be subject to impacts. More detail in the ER is expected on the residents living proximate to the site and to the main access roads, who will be impacted by worker and truck traffic, modification of the Walker Run waterway, and potentially by the noise and dust of plant construction, both in the description of the existing environment and in the impact discussions. The staff expects the ER to include the characterization of community infrastructure such as facilities and services and transportation routes. More information regarding the distribution of workers into current residents, immigrants, and weekly/monthly commuters' needs is expected in the ER. The shift schedule (time of day) and work activities during construction and a link to the traffic and noise analysis was not provided in the draft ER. PPL staff indicated that a traffic analysis is in development. Tax information was not provided in the draft ER. No documentation was available regarding who was contacted for the EJ analysis and whether subsistence use of resources potentially impacted by the proposed project have been considered.

The staff has some concern regarding the prolonged period of no-growth or decline and how that has affected community ability to respond to impacts. Standards of service (e.g., roads, police, fire) are needed where applicable as a basis for comparison (projected baseline population change should be reflected in these analyses) for evaluation of impacts.

Need for Power

The staff noted that the need for power analysis provided detailed region of interest (ROI) information concerning Pennsylvania, but not New Jersey or Maryland. The staff expects that the ER will provide additional information on New Jersey and Maryland in the ER to allow the staff to better understand the need for power analysis within the entire ROI.

Meteorology and Air Quality

As mentioned in the C-1 trip report, more information is necessary to determine if the local terrain and obstructions are affecting meteorological tower measurements to an appreciable degree. In addition, the staff noted that a reference to the U.S. Environmental Protection Agency guidelines concerning air quality is needed in the ER.

Radiological Issues, Uranium Fuel Cycle, Waste Systems, Accidents

There were numerous open items and the detail necessary to address all of the issues in the Environmental Standard Review Plan on these sections was not available in the draft ER. Discussions were held with the applicant to ask questions regarding the details that were missing in the draft ER.

As mentioned in the C-1 trip report, the design certification review for the U.S. Evolutionary Power Reactor is currently underway. The level of detail that is usually included in the Design Control Document may not be finalized by the time the application is scheduled for submittal. Therefore, staff expects an evaluation of the severe accident analysis to be provided in the ER.

Decommissioning

The draft ER lacked the certification required per 10 CFR 50.75(b) that financial assurance for decommissioning will be provided. The staff expects that this certification will be present in the final ER.

Transportation of Radioactive Material

The staff noted that additional information is needed regarding transportation impacts. PPL indicated that the reactor fuel has a uranium-235 enrichment exceeding 4% by weight. The staff expects the transportation section of the ER to include an explanation of this exceedance and how they can still meet the requirements stated in 10 CFR 51.52.

Cost-Benefit Analysis

There was no cost-benefit analysis included in the draft ER, so the staff was unable to assess its readiness. The staff expects that a cost-benefit analysis will be present in the final ER.

Conclusion

Overall, PPL has gathered most of the data that will allow it to submit an adequate ER. However, at the time of this readiness assessment visit, significant amounts of the available data had not been included in the draft ER to support the bases and conclusions regarding environmental impacts. Open items and depth of analysis issues were noted throughout the review of the draft ER. Specific concerns were noted in each area, as discussed above. It appears that an intense effort will be needed for this document to be completed on schedule. However, PPL stated its determination to allocate the resources necessary to make the submittal by October 2008. Readiness assessment activities are not as comprehensive as a formal acceptance review; therefore additional issues could be identified after the application is received.